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*Memorandum drawn up by the order of Colonel A. SCOTT WAUGH, Engineers, Surveyor General of India, F. R. S., F. R. G. S. &c. on the progress of the Kashmir Series of the Great Trigonometrical Survey of India, with map and observations on the late conquest of Gilgit and other incidental matters, by Captain T. G. MONTGOMERIE, Engineers, F. R. G. S. &c. in charge of the Series.*

During the field season of 1860, the triangulation of the Kashmir Series has made good progress up the river Indus, and the position of Leh, the capital of Ladak has been finally fixed. Messrs. Johnson and Beverley had to carry their work over some very difficult, rugged, and confined ground that separates the more open valley of the Indus to the south east of Leh\* from the table land of Rupshu and Hanle. This was effected in a most skilful and praiseworthy manner though it twice involved the ascent of a station by Mr. Johnson† of 19,979 feet and by Mr. Beverley‡ of another 19,958 feet above the sea, besides numerous other stations all over 17,000 feet above the sea.

A trigonometrical mark has been erected on a point 21,480 feet above the sea, but unfortunately there was not sufficient space to put a theodolite on it.

\* Lat.  $34^{\circ} 9' 30''.05$ . Long.  $77^{\circ} 36' 42''\cdot57$ . Height 11,279 Ft.

† Civil 2d. Asst. G. T. Survey.

‡ Senior Sub-Asst. Do.

Several points in China have been fixed, and amongst others the well known Gya peak is supposed to be included. The height of this peak which I saw last year appears to be from 23 to 24,000 feet above the sea. Further observations have been taken to the group of peaks that I saw at the same time in the Shayok direction: the peaks average considerably over 26,000 feet in height. Some progress has been made with the triangulation of Zanskar. In this work a very rugged and confined piece of ground has been crossed between the valley of the Indus and the more open valley of Zanskar.

On the upper course of the Shayok river (in the Nubra district) the triangulation has been commenced and a good many peaks fixed.

The topographical work was first taken up in the Kishengunga valley, which although drained by a large river is really, for the greater part, little better than a chasm in the mountains. Throughout it is very precipitous, and Ahmed Khan the chieftain of Kurná said to me, in reference to its rocky surface, "A traveller must put on grass shoes if he wishes to visit the Kishengunga valley." It is indeed all but impossible for even the best pedestrians without loads to follow the river from Kurná to Gurais, and any one wishing to do so would prefer going actually along the northern ridge of the Kashmir valley.

The Kishengunga valley, so difficult a piece of country at the best time of the year, had to be taken up when the snow was heavy, even at 9,000 feet. This added very much to the difficulties of the work, but as the Maha Raja's troops were shortly to cross the valley en route to Gilgit, it was necessary to finish early. The work was fortunately completed in very good time, and the whole of the surveyors were then transferred to fresh ground in Little Thibet and Ladak.

During the season topographical sketches were made of the whole of the valley of the Indus, from Skardo the capital of Little Thibet or Baltistan to Leh the capital of Ladak, as well as the whole of the Sooroo and Dras valleys, the plains of Deosai, and a large part of the Shigar valley north of Skardo with a portion of the Nubra or Shayok valley. This large tract of country, in all an area of about 12,000 square miles,—had been triangulated in previous seasons. It embraces all sorts of ground from an altitude of 27,000 feet down in a few



cases to 8000 feet above the sea, though seldom under 10,000 feet. It includes at least 300\* square miles of glaciers for the most part of the larger kind. Those glaciers already surveyed to the north of the Shayok have proved to be quite as large as the ones previously measured,† by those very able and energetic topographical surveyors Captain Austen and Lieut. Melville of the Kashmir Series, near the Kún and Nún peaks in the Wurdwan and Sooroo districts. Captain Austen's ground in one part rose to nearly 27,000 feet, and one of the glaciers in the highest ground is about 11 miles in length and from  $\frac{1}{2}$  to  $1\frac{3}{4}$  miles in breadth. In Lieut. Melville's work, the peaks ran up to nearly 24,000 and under Kún one of the glaciers is about 10 miles long and from  $\frac{1}{2}$  to  $1\frac{1}{2}$  miles broad. Glaciers are in fact in this section of the Himalayas very much larger and more numerous than in any part of the Himalayas previously surveyed. Possibly this is in some measure due to the latitude, as all these glaciers lie between latitudes  $33^{\circ}$  and  $36^{\circ}$  north, but it must also be partly the result of the immense height of the peaks generally as, with the exception of those of Nepal, they exceed all other peaks of the Himalayas that have as yet been measured.

The glaciers in the neighbourhood of the Nanga Parbat and K (2) have not as yet been explored: they will undoubtedly be large, and those of the latter at any rate are, from all that has been seen and heard, likely to prove even larger than the ones already measured. From 3 to 4 marches are occupied in crossing the glacier at the head of the Braldo branch of the Shigar river.

The whole of the country sketched was of a very difficult character, testing both the physical and artistic powers of the surveyors to the utmost in moving about and delineating the country. Circumstances permitting, the whole of the glaciers in the neighbourhood of the Nanga Parbat and of K (2) will be explored during the next field season, as will those of Zanskar and other places. There is hardly any portion of the upper valley of the Indus without glaciers, but they are largest and abound most near the great Hima-

\* Lieut. Melville's Sections measured 198 square miles; Capt. Austen's estimated, 150 square miles, in other Sections, 50 square miles. Total, 398 square miles.

† In 1858 and 1859.

layan and Karakorum ridges. The plains of Deosai are perhaps the most curious topographical feature of the country sketched during the season. These plains consist of about 580 square miles of gently undulating ground averaging at least 14,000 feet above the sea and surrounded on all sides by rugged mountains running up to from 16,000 to 17,000 feet. The drainage escaping through a not easily distinguished gorge near the Katasiri station, falls into the Dras river above Kirkitchoo. This tributary of the Dras river is called the Shigar and sometimes the Shingo river, it brings down gold with its waters, and gold-washing is carried on just below the junction. The Indus itself and several other of its tributaries are known to produce gold. The gold-washing is said not to be valuable, but it does sometimes give as much as 1 or 2 small rupees a day to a man, though a most barbarous method is employed in washing the earth. This earth is taken from the detritus which, I think, now generally lies above the highest flood line. After 2 or 3 washings a black heavyish sort of sand is left with the pieces of gold scattered here and there.

As far as my own experience goes I should say it was not a profitable business, for after half an hour's washing I only got 5 very tiny nuggets hardly worth an anna, and I had at the time the benefit of the assistance of an Australian gentleman. This gentleman thought that something might be done by investing in a cradle and apparatus. He said that a substance like the black sand mentioned above, had proved valuable in Australia.

When crossing the Himalaya range the plains of Deosai were a great obstacle to the progress of the triangulation, for although the depression of the Himalayas in that part gave a most extended view from very high points, still there being no habitations for the distance of 7 or 8 marches, and no village of any size for 11 or 12 marches, the operations were carried on under very great difficulties. In the plains the only firewood to be had is got by digging up the juniper roots and from very thin stunted willows, but on the mountains above, there was absolutely no firewood to be had of any kind, the stations being all from 16 to 17,000 feet in height. It was absolutely necessary to reside at least several days on these stations.

Provisions had at all stations to be brought from places 4 to 7 marches distant. The people of the country were moreover not very willing to enter the plains from the Kashmir side. The operations could only be carried on during the rainy season, and at that time there are but few breaks in the clouds which rush through this depression of the Himalayas into the valley of the Indus and across to the Karakoram mountains. With the greatest difficulty the signal men who worked the heliotropes and lamps at the various stations were fed, and on two occasions the main party were starved out and had to retreat in consequence of protracted cloudy weather.

Stations over 16,000 feet above the sea are not the most agreeable places for residence at the best of times, but when enveloped in clouds they are unmistakably unpleasant, though there is some slight compensation in the grandeur of a break up, or when the upper level of the clouds falls, as I have several times seen it fall, below the station on which I was pitched, leaving the camp on an island surrounded with a level sea of clouds from which the peaks of the various ranges stood out like other islands and the waves of cloud surged backwards and forwards across the lower ridges between. In clear weather the views were really magnificent and proportionately appreciated after the cloudy weather. The atmosphere was at such times wonderfully clear at those elevations.

It was across the plains of Deosai from Haramook that I took the first observation to the peak K (2) (28,287 feet above the sea) at a distance of 136 miles, the side of one of our largest triangles.

Notwithstanding all the difficulties the triangulation was successfully carried over the plains of Deosai during one season without relaxing any of the rigorous rules of the Great Trigonometrical Survey of India.

With reference to my last memorandum on the great flood of the river Indus, I have not as yet been able to obtain any further information as to its origin, though the expedition against Gilgit has succeeded as I anticipated it would.

The Maharajah has directed every enquiry to be made, and I hope to be able to give a correct account of the origin of the flood when I return to Maharajah's territories next year. Meantime the expedition has confirmed several important points in the geography

of the countries near Gilgit, and a short account of the expedition itself may be interesting.

The enclosed rough plan is the general result as to the geography of the country annexed, and also shows a portion of the neighbouring countries.

The Maharajah laid in a large supply of food at the forts of Astor and Boonjee during the summer of 1859. Hitherto one of the greatest obstacles to making a successful attack on Gilgit has been the difficulty of getting supplies. The natives are in the habit of using the old expression to the effect, that a small force going against Gilgit was sure to be defeated and a large force to be starved. To obviate this a hundred ponies were put at each of the 17 halting places between Kashmir and Boonjee, viâ Gurais and Astor, and whilst the weather permitted a hundred loads of grain were delivered daily at Boonjee.

In June and July of this year several detachments of sepoy were moved upon Gilgit mustering finally at Boonjee to about 4000 men under Colonel Devi Singh and Colonel Dooloo Singh. The whole body then advanced upon Gilgit crossing the Indus by means of a boat, further on the army crossed a tributary river by a rope-bridge of their own making, and another tributary by a wooden bridge. No opposition was met before reaching Gilgit itself, and there the Gilgities got inside their fort and held out for a short time, during which there was a little firing on both sides ending by the Gilgities surrendering, the Maharajah's force losing one man by the bursting of a gun and the Gilgities leaving one dead man in the fort supposed to have died a natural death during the siege.

Having settled affairs at Gilgit, the force advanced further up the valley to Shirni (Shirwat) fort, where there was some slight resistance ending as before in capitulation. The force then advanced on Yassín which is on the Gilgit river, and not on a separate tributary of the Indus. Yassín fell into the hands of the force and the son of Goramán who held Gilgit in addition to Yassín made his escape over the mountains to the west and on into Bádákshán. Goramán himself died during 1857. He was well known in the whole of the country between the Indus and Cabul and was generally called an Adamkhor, or man-eater, from a habit that he had of catching all





Rough Sketch of the Drainage  
of  
**G I L G I T**  
and  
Adjacent Countries  
Compiled from the Map of the Punjab and  
more recent information received from time to time  
by  
Capt. J. S. Montgomery, Eng. R. G. S.  
1<sup>st</sup> Ass't G. T. Survey of India.

Scale 52 Miles = 1 Inch

REDUCED IN THE SURVEYOR'S OFFICE FROM THE ORIGINAL SKETCH CALCUTTA, 28<sup>th</sup> DEC<sup>r</sup> 1860 BY COLMAN HUCKEE.



strangers that he could and of exchanging them for the large dogs so much prized in that part of the world. Goramán and his son had till this year held Yassin, and for a short time Gilgit also, though once or twice driven out by the Dogras from the latter.

In addition to the main body of the Dogra force advancing from the south, an armed body of Baltis advanced through Shigar and thence by the Nagar and Hoonza valleys threatening Gilgit on the east.

Another force was to have advanced from the west under the instructions of an agent from Dheer and Chitrál, but it was not apparently in time, though possibly the mere talk of it made the Goramán's son unhappy as to his line of retreat.

This conquest, which may be said to have been made without loss of life, is highly creditable to the Maharajah and his officers who planned and carried it out. The effects are in some respects likely to be very salutary. In the first place, the mere fact of the Maharajah having a force in Gilgit overawes and keeps in check the robber-clans of Nagar and Hoonza who have for years infested the roads between Balti and Ladak on the one side, and Yarkand on the other, and latterly to such an extent that those roads in their immediate neighbourhood, though the shortest, have been almost completely closed to anything in the shape of a merchant. Keeping possession of Gilgit during the cold weather when all communication with Kashmir is closed, has always been the most difficult business. The Maharajah has, however, left nearly 3000 men in the valley and consequently in future it is to be hoped that his troops will hold their own and that the traffic from Skardo direct to Yarkand will again be resumed.

In the second place, this successful expedition has had a very wholesome effect on all the petty tribes lying between Gilgit and the Cabul territories, and ultimately will be of assistance in keeping the Swat valley in check. Swat being still one of the recusant tribes on our N. W. Frontier.

At the durbars of the Maharajah during this season men from Chitraul, Dheer, Swat, Kholi, Palus, &c. were in attendance, as well as from Chilas, Nagar and Hoonza who have been constant attendants for some years.

At the last darbar held by the Maharajah, Colonel Devi Singh made his salam, having just returned from the Gilgit expedition. Some of the Yassín men\* were introduced at the same time. One long brass gun of about 3 lbs. bore accompanied the Colonel, his sepoy having taken it from the Goramán's son. This gun seemed to be well cast and had a Persian inscription on it to the effect that it was made in Bádákshán, or had belonged to that place.

Among the minor results of the expedition was a great influx of presents to the Maharajah from all the chiefs between Gilgit and Kafirstan. Perhaps the most valuable in the eyes of the curator of the Asiatic Society's Museum would have been a splendid live male specimen of the Markhor, the greatest prize of Himalayan sportsmen. This animal was introduced into the full darbar guided by four men with guy ropes. It was really a handsome animal, of a light fawn colour, in good condition, with a capital pair of horns and a fine long beard. The top of the Markhor's head was perhaps  $5\frac{1}{2}$  feet from the ground, the horns towering up above all the men in attendance. The keepers of this animal evidently held him in the greatest respect, though he had been a captive for at least two months. He was a present from the chiefs of Koli-Palus on the Indus.

The Chilassics sent in some very fine half domesticated goats, a part of which the Maharajah distributed amongst the European visitors to Kashmir. One of these goats now in my possession has a very fine pair of horns of the Markhor kind.

The country on either side of the Indus between the British district of Hazára and the Maharajah's valley of Astor has hitherto been all but impassable. With Chilas, Kholi and Pálús all under the orders of the Maharajah, a very slight pressure ought to open out the remainder down to the Hazára district, which would all tend to bring the Akhoon of Swat to reason, and perhaps eventually enable us to explore his valley and the whole course of the Indus river. At the same time, opening out the whole valley of the Indus is in itself no small advantage, if it will enable travellers to pass along in safety.

\* The Yassín men in long dark Khákí coloured woollen dresses. Men of Swat in long dark blue woollen dresses.

Traffic will undoubtedly increase, and moreover the Punjab Government will have the means of getting full information in case the Indus should again be blocked up in any part of its own course or that of its tributary streams. In this latter respect the conquest of Gilgit with Yassin, Hoonza and Nagar is really very valuable, as it places under a friendly native state, the only great tributary of the Indus concerning which the British Government has hitherto been unable to get any reliable information. This tributary moreover is, in my opinion, the one in which the last great flood of the Indus was generated.\*

If these countries are in thorough subjection to the Maharajah such a calamity as the cataclysm of 1858 ought not again to befall British subjects on the Indus without their having at any rate full warning; even if it were not possible to prevent or mitigate its evil effects by the scientific application of labour, as it most probably would be.

In my former memorandum I said that I thought floods might be generated in many parts both of the Indus and its tributaries. Captain Austen has just forwarded me the following, which fully confirms that opinion. "Camp Gol on Indus, 29th August, 1860. A flood occurred at Gol about 5 years ago in the month of June. Very muddy water came down the ravine (slowly at first) and the people who saw it, left their houses and ran up the hill sides. Twelve old men, who could not run away, were drowned, twenty houses and about five hundred apricot trees were washed away. There was but little snow on the hills at that time, and the ravine is by no means a large one. The villagers go up it constantly and yet were not aware of its being in any way dammed up, though the water must have been in considerable quantity, as the flood altered the course of the Indus. It is a mystery to me where sufficient water could have been collected. This account was given by Wazzir Husain of Gol."

(Sd.) H. H. G. A.

The Balti force that went from Shigar viâ Nagar to Gilgit had to cross a very large glacier. The route obtained by Captain Austen, attached to this, shews that it takes a man the whole day to cross it.

With reference to the Society's discussion about Kyangs. A great

\* See memorandum published in *As. Society's Journal*, No. I. of 1860.



many Kyangs have been seen by myself and others. I have watched a herd for a long time at a short distance with a telescope. I have not heard them calling, but Mr. Johnson, who caught a foal\* this year, says that they bray, he heard them several times quite distinctly, and the natives† with my camp say the same. I saw a very large skin of a Kyang shot by Mr. Johnson this season in Rupshu. There was a black mark all the way down the back, but not the least sign of any stripe on the shoulders, the skin of the tail was about 13 inches long, and the whole tail not more than  $2\frac{1}{4}$  feet in length. But this I think exceptional, as some of those in the herd I examined had tails reaching nearly to the ground. The ears and tail struck me as being like those of a mule, and I thought them generally very high in the withers and much larger than any of the wild asses of the salt range.

The season of 1860 has not been a favorable one as far as the weather was concerned, it was indeed peculiarly unfavorable for the triangulation in the upper part of the valleys of the Indus. The late very heavy falls of snow in March were never thoroughly melted away. Before the triangulating party left, the whole of the smaller streams remained hard frozen during the day. The Kyangs and even the geese, ducks and other waterfowl all left the neighbourhood of the Chomoriri lake as early as the end of August. It was so cold that even at the end of July, I crossed over some snow bridges in Ladak that in ordinary seasons disappear before the end of June. The Mácháhoy glacier projected further than usual into the Dras valley, and its end did not melt back very much till the close of the season. Bad weather set in early in September and soon after all survey work was forcibly brought to an end.

It is to be hoped that we may have no more such seasons. With favorable weather I think we may succeed in carrying both the triangulation and topographical work up to the Chinese frontier. The triangulation may possibly advance a little further even as matters now stand. And if the present war with China results in friendly relations extending to all the provinces of that empire, we may hope to see a large traffic spring up between Hindustan and central Asia.

\* This foal died after a fortnight's captivity.

† Kainchna or hainchna was the termed used by them.

The triangulation of the Great Trigonometrical Survey may be joined on to that of Russia, and thus accomplish the project of Colonel Everest the late Surveyor General of India, who wished to measure the arc between Cape Comorin and Nova Zembla, an arc that would include nearly 70 degrees of the earth. To accomplish this there at present remains a gap of little over 5 degrees of Chinese territory, the operations of the Kashmir series extending beyond Lat. 36° and the government of Tobolsk now coming down below Lat. 42°. At any rate if the war makes the Chinese officials on our North East frontier friendly, we may succeed hereafter in fixing the geographical positions of some of the great cities of central Asia.

T. G. MONTGOMERIE, CAP. ENGRS.

*1st Assistant Gt. Trigl. Survey of India,  
In charge Kashmir Series.*

*Route from Skardo viâ Shigar and Nagar to Gilgit.*

No. of Marches.	Distance in Miles.	Names of halting-places.	REMARKS.
1	18	Skardo to, ...	
2	15	Shigar, ...	A large village.
3	16	Kushamul, ...	A village.
4	20	Chutran, ...	Literally hot water from a hot spring.
5		Arundu, ...	Village.
6		Yak Kole, ...	Very bad road crosses a pass and goes over a very long glacier.
7		Hai-Hutun, ..	A bad road.
8		Hispir, ...	A village, . march longer than usual.
9		Hoper, ...	A village.
10		Nagar, ..	Do.
11		Pakher, ...	Do. a long march.
12		Nillit, ...	Do. Do.
13		Chaparote, ...	Do. Do. in Gilgit.
14		Naomul, ...	Do. Do. Do.
		Gilgit, ..	Do. Do. Do.

N. B.—The Hoonza river is very much smaller than the Shigar. There are three roads from Hoonza to Yarkand, one that takes 12,

another 8, and another no more than 4 days. The last being only known to the natives of the country and not to the merchants who go to Yarkand. The man who gave the above said he had gone by the Nagar and Gilgit routes.

(Sd.) H. H. G. A.

*Route from Kashmir to Gilgit viâ Gurais and Astor.*

No. of Marches.	Distance in Miles.	Names of halting-places.	REMARKS.
1		Srinagar to, ...	
2		Sinbul, ...	
3		Bundipoor, ..	
4		Trakbul, ...	
4		Jotkusu, ..	Cross the Kashmir ridge.
5		Kanzlawan, ...	
6		Gurais, ...	
12		Astor, ...	Cross the Himalayan watershed during 3rd march.
16		Boonjee, ...	
22		Gilgit, ...	Cross the Indus by boat close to Boonjee.
Total ... 22 marches.			

The routes given from Hoonza to Yarkand (though the 4 days may be apocryphal) all tend to shew that Yarkand must be nearer the longitude of Skardo than of Leh, the latter route being reckoned at least 16 days from the Karakoram ridge; and the 4 days may be given on the strength of the wonderful rapidity with which the Hoonza-Nagar people got warning of the Kafilas leaving Yarkand, so quickly indeed was this given that the Hunza-Nagris were able to make all their arrangements in Hunza and then to cross into the Shigar valley and still be in time to rob the Kafilas before they reached the inhabited parts of Ladak and Balti.

T. G. MONTGOMERIE, CAP. ENGRS.

*Indian Idylls*, No. I.—By R. T. H. GRIFFITH, *Esq.*, *M. A.*

[Mr. Griffith, who has already distinguished himself by his translation of Kalidása's *Kumára Sambhava*,—in some respects the best English translation which has yet appeared of any Sanskrit poem,—has sent us the following Idyll, as the first of a series which is to comprise three or four of the best episodes of the same poet's other epic the *Raghuvansa*. In former years the *Journal* used to publish similar translations, as that of the first canto of the *Kum. Sambh.* by Dr. Mill in 1833 ; and the Editors are gratified to be able to revive the long discontinued practice under such favourable auspices.—EDS.]

## DILÍPA.\*

Great authors of the world, almighty Pair,  
 Listen, O listen to your servant's prayer !  
 Ye who are knit, by Love's eternal tie,  
 Close as the links that word and sense ally, †  
 Hear, mighty S'IVA, gracious UMÁ, ‡ hear ;  
 Inspire my words, and let their sense be clear !  
 But ah, the folly ! Can I hope to guide  
 My frail bark safely o'er a boundless tide !  
 How men will mock the humble bard who sings  
 The ancient glories of the Sun-born Kings, §  
 Like a young child with little hands outspread  
 For fruit that glows above a giant's head !

\* The story, here roughly translated, is taken from the 1st, 2nd, and part of the 3rd books of *Kálidása's Raghuvansa*, or *Children of the Sun*. The whole poem has been translated into Latin by Stenzler, and into French by M. Hippolyte Fauche, and hastily thrown into English verse by the present translator. The poem contains some magnificent bits, but very much of it is, to our ideas, intensely prosaic and intolerably childish. The service of the cow in this story will, as Professor H. H. Wilson has observed, "raise a smile upon the face of a European critic, but it is not unpoetical and is intensely characteristic."

† The Mímánsá school of philosophy holds that a word and its meaning are eternally and inseparably connected.

‡ Umá's birth, beauty, love, penance, and marriage to Siva, are charmingly described in *Kálidása's Kumára-Sambhava*, or *Birth of the War-god*.

§ A race of princes, descended from the sun, whose capital was Ayodhyá in Oudh.

Yet by their lays the ancient Sons of Song\*  
 Give me free access to the glorious throng ;  
 As diamonds pierce the way for silk to string  
 Rich pearls to deck the forehead of a king.  
 Yes, I must dare : their noble deeds inspire,  
 And lend me somewhat of a poet's fire.  
 Yes, I will sing, although the hope be vain  
 To tell their glories in a worthy strain,  
 Whose holy fame in earliest life was won,  
 Who toiled unresting till the task was done.  
 Far as the distant seas all owned their sway,  
 High as the Heaven none checked their lofty way.  
 Constant in worship, prompt at Duty's call,  
 Swift to reward the good, the bad appal,  
 They gathered wealth, but gathered to bestow,  
 And ruled their words that all their truth might know.  
 In glory's quest they risked their noble lives,  
 For love and children married gentle wives.  
 On holy lore in childhood's days intent,  
 In love and joy their youthful prime they spent ;  
 As hermits mused in life's declining day,  
 Then in Devotion dreamed their souls away.  
 Come, hear my song, ye just, whose bosoms glow  
 With Virtue's flame, and good from evil know :  
 As fire assays the purity of gold,  
 Judge ye the merit of these Chiefs of old.

First MANU reigned, revered by every sage,  
 First, like the mystic word in Scripture's page.†  
 From him DILÍPA traced his high descent,  
 Of his pure race a purer ornament ;  
 A peerless prince,—so, free from cloud and stain,  
 Rose the bright moon from out the milky main.‡

\* Válmíki, author of the *Rámáyan*, and others.

† The sacred syllable OM, prefacing the prayers and most of the writings of the Hindus.

‡ Alluding to the *churning of the ocean*, told in the *Mahábhārata*, when the moon and other buried treasures were recovered from the sea.



Tall and broad-shouldered, stout and strong of limb,  
Valour incarnate fixed her throne in him.  
Matchless in beauty and heroic might,  
He towered like MERU\* in his lofty height.  
Meet for his godlike form, his noble mind  
To worthy studies in his youth inclined :  
Thence great designs inspired his generous soul,  
And mighty deeds with glory crowned the whole.  
With kingly virtues, gentle yet severe,  
His subjects loved him, but they loved in fear :  
We love the pearls that lie 'neath ocean's waves,  
But dread the monsters in his gloomy caves.  
His loving people followed him, their guide,  
Nor turned from MANU'S† Law one step aside ;  
And well they knew the tax they gladly paid  
For their advantage on the realm was laid.  
The bounteous sun delights to drink the lakes,  
But gives ten thousand-fold the wealth he takes.  
Though troops in harness ranged before his gate  
Kept watch and ward to swell his royal state,  
Yet all success, each triumph o'er the foe,  
Sprang from his wisdom or his ready bow.  
Prudent and calm, no tell-tale look revealed  
His secret thoughts from every eye concealed ;  
As, in the present life, our joys and woes  
Our former virtues and our crimes disclose,  
So, crowned with full success, events alone  
Proved his wise plans and made his counsels known.  
He honoured prudence though he scorned to fear ;  
Youthful and strong, his virtue was sincere.  
He gathered riches, but he freely gave,  
And Pleasure blessed him, but could ne'er enslave.  
Contrasted virtues, ceasing to contest,  
Reigned, like fond sisters, in the prince's breast ;

\* The sacred mountain, in the centre of the seven continents.

† The Moses of the Hindus.

With silence, wise ; with might, to anger slow ;  
 A lavish monarch, but averse from show.  
 Skilled in all lore, unharmed by Pleasure's sway,  
 He grew in years but felt no power decay ;  
 His people's father, guardian, friend, and guide,  
 Their sires were others : he was all beside.  
 Thus, as he ruled his kingdom to maintain,  
 And married wives a father's joy to gain,  
 No selfish aims his noble spirit knew,  
 For Virtue formed his Gain and Pleasure too.  
 To gladden Heaven with gifts the earth he drained ;  
 On earth, in answer, gracious INDRA\* rained :  
 And thus to each a glorious boast was given,  
 That INDRA fostered earth, DILÍPA Heaven.  
 What other prince this lofty praise could claim,  
 That theft was only, in his realm, a name ?  
 He honoured merit, though it graced a foe,  
 As sick men medicine's healing influence know ;  
 While worthless friends were banished from his sight,  
 Like fingers poisoned by a serpent's bite.  
 The good Creator made, for all to share,  
 The earth and water, ether, fire and air :  
 Thus too he formed DILÍPA, sent to bless,  
 And find his own in others' happiness.  
 He ruled the earth, from rival sceptre free,  
 Like one vast city girdled by the sea.  
 His queen was daughter of the royal race  
 Of MAGADH, lovely both in mind and face,  
 And, if his love was shared by girls besides,  
 She and dear Fortune were his only brides.

One boon was wanting to the monarch's joy ;  
 His were all blessings save that best, a boy.  
 Oh, how he longed, that childless king, to see  
 A royal infant smiling on her knee,

\* The Hindu Jupiter.—“Oblations offered in fire ascend to the sun, from the sun rain is produced, from rain corn, and thence spring mankind.” Wilson's *Rig Veda*, vol. i. p. 248 *n*.

With his dear mother's eyes and face divine,  
A second self to ornament his line !

One hope is left, to seek the hermit's cell,  
And to his holy guide VASISHTHA, tell  
The longing of his soul : his ancient friend  
May give some counsel that his grief may end.

To chosen ministers he trusts the weight  
Of all his royal sway, and cares of state.  
To God, the great Creator, first he pays  
His humble worship, and for offspring prays,  
Then with the queen ascends his car, that tells  
His coming with the music of its bells.  
Have ye ne'er seen an elephant on high  
Borne on his cloudy chariot through the sky ?  
Have ye ne'er seen the flashing lightning ride,  
In sportive beauty, by the monster's side ?  
So seemed it now : so tall and strong was he ;  
So bright, so dazzling in her beauty, she.  
Few are their guards : a thousand trampling feet  
Would mar the quiet of the Saint's retreat ;  
But yet a circling host seems ever there,  
For such divinity doth hedge that pair.  
Fresh on their cheeks the soft wind gently comes,  
Wafting the perfume of a thousand gums,  
And, heavy with the pollen of bright flowers,  
Waves the young branches of the Mango bowers.  
They hear the peacock's joyous cry ; his head  
Lifted in wonder at the coursers' tread.  
They watch the cranes in jubilant armics fly,  
Crowning, like flowers, the portals of the sky.  
From shady coverts by the way the deer  
Throw startled glances when the car is near,  
Then, as they gaze, the king with pride compares  
His soft-eyed lady's tender look with theirs.

A friendly wind attends them on their way,  
And augurs fortune ere the close of day :  
No dust may fall upon the lady's dress,  
Stain her soft cheek, or dim one shining tress,

While, like her breath, sweet odours, fresh and cool,  
Steal from the lilies 'on the ruffled pool.

Shining in beauty, robed in purest white,  
Like spring's best planet, and the Lord of Night,  
Through towns they pass, and many a hamlet fair,  
Founded and cherished by their royal care ;  
While white-robed priests attend, a holy train,  
Bless their beloved prince, nor bless in vain.

Nor do they scorn the gifts that shepherds bring,  
Curds and new milk, their tribute to the King ;  
But kindly bid the happy peasants say  
What trees are those whose branches shade the way.  
With eager eyes he shows the wondering Queen  
The varied beauties of each woodland scene.  
Lost in delight they reach the hermit's cot,  
The journey's ended, but they mark it not.  
Evening is come, and weary of the road  
The horses rest before the Saint's abode,  
Crowded with hermits from the forests near,  
Seeking their grass and fruit and fuel here.  
There playful fawns their daily rice await,  
Thronging like children round the cottage gate,  
And, in the garden, hermits' daughters o'er  
Each young tree's thirsty roots fresh water pour,  
Then stand aside, that timid birds may drink  
Their share, in quiet, ere the stream can sink.  
Quick from the car the King and Queen descend,  
And turn, impatient, towards their saintly friend.  
The hermits welcome him with honours due,  
And kindly greet the royal lady too ;  
Then lead them on where sits the ancient sage  
With the Great Matron, in the hermitage.  
Welcomed with gentle looks and words most sweet  
The royal pair embrace their sacred feet.  
And then *VASISHTHA*, after food and rest,  
Asks of his kingdom's weal his honoured guest.  
Cheered by his kindness, thus replies the King,  
The best of speakers, to his questioning :

“ Safe in thy love, I dread no living foe ;  
 Thy friendship, sage, protects from every woe ;  
 Vain are my arrows, vain all earthly arms,  
 For thou hast blest me with thy mystic charms.  
 Heaven hears thy voice ; thou bid’st the flame arise,  
 To call down water from obedient skies ;  
 My people thrive, from grief and sickness free,  
 And all these blessings, Saint, we owe to thee.

“ With thee, great lord, to counsel and befriend,  
 The bliss thou sendest surely ne’er should end ;  
 But Mother Earth, whom tears nor prayers have won,  
 Is still ungracious and denies a son ;  
 She teems with jewels, and can yet withhold  
 One treasure lovelier than gems and gold.

“ The spirits of my fathers pine to see  
 No hope of funeral offerings after me,  
 And, if they taste the drink my care supplies,  
 They taste it heated with unceasing sighs.  
 As *LOKÁLOKA*’s chain,\* with one side bright,  
 The other buried in eternal night,  
 Pure is my soul through sacrifice and prayer,  
 But all the rest is dark without an heir.  
 Thou knowest in the world to come our bliss  
 Springs from our Penance and good works in this ;  
 But he to whom a saviour son is given  
 Finds peace on earth and endless joy in Heaven.

“ Dear guide and guardian, thou would’st grieve to see  
 No golden blossoms on the favourite tree  
 Thou hast so often watered ; and, when I,  
 Thy friend, am childless, wilt thou check the sigh ?  
 Oh, aid me in my woe : ’tis ever thine  
 To bring good succour to our ancient line !”

He spake. One instant, ere the sage replies,  
 He fixes, in deep thought, his searching eyes ;  
 Still as some lake at summer’s noon, when deep  
 In sunless caverns lie the fish asleep.

\* A mountainous belt, surrounding the outermost of the seven seas, and bounding the world.



He saw the cause with more than human ken,  
 And thus the sage addressed the King of men :  
 " Dost thou remember when, supremely blest,  
 INDRA in Heaven received thee as his guest ?  
 Thence as thou camest on thy homeward way  
 The holy Cow beneath the shadow lay  
 Of the Celestial Tree : thy thoughts were far  
 Far absent, as the thoughts of lovers are,  
 When absent from their loves ; thy heedless eye  
 Saw not, or marked not, as thou camest by.  
 Then thus she cursed thee—' As thine impious pride  
 The reverence Kings should pay me has denied ;  
 Now shall no offspring bless thy royal line,  
 Till thou hast paid all honours due to mine.'  
 The curse she uttered failed to reach thine ear,  
 So loud the voice of GANGÁ foaming near,  
 Celestial GANGÁ, boiling o'er with spray,  
 Dashed up by heavenly elephants at play.  
 For this dishonour to the holy Cow,  
 Unhonoured, childless, thou art suffering now.  
 Woe and misfortune ever are their fate  
 Who pay not reverence to the good and great.  
 Now in the under-world she dwells to aid  
 The dreary vow that old PRACHETAS\* made ;  
 Then, in her stead, this Cow, her offspring, take,  
 And pay her honour for her mother's sake.  
 Win, with all care, her love, for she can pour  
 All blessings on thee from her boundless store."  
 The hermit ceased. Quick from the grove she came,  
 Young NANDINI, the Cow that blessed the flame  
 Of sacrificial worship. Dusky red  
 Was her fair body ; on her sacred head  
 A crescent lock of curling silvery hair  
 Shone like the young moon in the evening air.  
 As, with maternal love, her calf she viewed,  
 Full streams of holy milk the ground bedewed,  
 While the dust, raised beneath her sacred feet,  
 Fell on the monarch's head with influence sweet.

\* [For this sacrifice of Prachetas or Varuna, see Mahábh. vol. i p 32—Eds.]

“ Rejoice,” the hermit cried, “ thy bliss is near :  
Her name scarce uttered, see ! the Cow is here !  
Now feed on fruit, and what the wood supplies,  
And watch her every step with careful eyes :  
By constant toil is sacred lore attained,  
So shall her love by ceaseless care be gained,  
Watch all her movements, be her actions thine ;  
Walk when she walks, and, when she rests, recline ;  
And let thy lady, at the break of day,  
Far as the sacred grove protect her way.

Then go, and prosper ! Blessed shalt thou be,  
And among fathers none shall equal thee.”

The King and Queen before the hermit bent,  
And to his bidding gave a glad consent.

Then sought the leafy lodging, where they found  
Their bed of sweet grass heaped upon the ground.

Far be the thought that hermit had not won  
Full power to grant that childless King a son ;  
’Twas in obedience to the Law he bade  
The royal suppliant seek the forest shade.  
Ere yet with early dawn the sky was red,  
The anxious couple left their humble bed.  
She culled fresh garlands for the holy Cow,  
And poured sweet perfumes o’er her sacred brow.  
Then in her steps that royal matron trod,  
As the Law follows close the Word of God.  
Far as the forest’s darksome edge she went,  
Then left her husband on his charge intent.  
Not less his care than if that Cow had been  
Earth with her teeming oceans, Earth the queen.  
No servants followed ; for their own strong arm  
Guards MANU’S children from all scathe and harm.  
Close to the Cow, he kept the flies away,  
Fed her with grass and many a tender spray.  
To win her love he gently stroked her head,  
Checked not her steps, but followed where she led.  
With her he stood, with her he sought repose,  
Drank when she drank, and, when she moved, arose.

When from his brow no tell-tale oozings flow,  
The forest elephant's wild heat to show,  
Ye mark his fury as he rushes by  
In the red lightning of his troubled eye.  
Thus when his kingly state was laid aside,  
His royal robes and ornaments of pride,  
Ye could not see DILÍPA, but to swear  
A king indeed, a glorious king, was there.

As he moved onwards, beautiful and strong,  
The glad birds hailed him with their gayest song,  
And, shaken by the breeze, young ereepers shed  
A coronet of flowers upon his head ;  
From shady coverts, as he passed, the deer  
Gazed on the gentle king, and knew no fear ;  
While, as the breezes filled the tuneful reeds,  
He heard the Wood-Sylphs laud his glorious deeds.  
When faint and sinking 'neath the glare of day,  
A gentle zephyr round his head would play,  
And, stealing dew-drops from the mountain springs,  
Waft cooling odours on its balmy wings.

Peace reigned around him as the monarch came ;  
Unquenched by showers, the forest ceased to flame :  
The trees glowed brighter with their fruits of gold,  
The lion slew not, and the fawn was bold.

When evening came, the Cow and glowing sun  
Turned to their rest, their daily wandering done.  
Now o'er the woods the shades of evening fell :  
The herds of boars forsook the marshy dell ;  
His leafy home the weary peacock eyed,  
And trooping deer to grassy coverts hied.  
Then faint with watching for her lord, the dame  
Forth from the hermitage to meet him came,  
And feasted on his face with eyes that ne'er  
Could quench their growing thirst with gazing there.  
In fairest beauty stood the Cow between  
The splendid monarch and the gentle queen,  
As the soft glory of the evening's light  
With purest lustre parts the day and night.

With reverent steps the lady round her passed  
And from a bowl parched grain in worship cast ;  
Then paid due honour to her spacious brow,  
That door to lead the lady to her vow.  
Though yearning for her young, the Cow stood still  
Delighted with the worship, while a thrill  
Of hopeful joy ran through each royal breast :  
Such marks of favour show their vow is blest.

The King, with hands whose might no foe could meet,  
Gently embraced his ancient Teacher's feet,  
Performed the evening rites, and turned to pay  
The holy Cow fresh homage where she lay.  
His thoughtful care her every want supplied ;  
He placed a lamp and fodder by her side,  
And, when she lay upon her grassy bed,  
He on his lady's breast reposed his head ;  
When the Cow slept, he bade his eyelids close ;  
When she had risen, from his couch arose.  
Thus toiling still upon his vow intent,  
Thrice seven long days the anxious monarch spent.

There was a grass-hid cavern, dark and deep,  
Where GANGÁ thunders down HIMÁLAYA'S steep ;  
The Cow had entered, but her guardian still  
Looked, lost in wonder, on the glorious hill,  
Nor feared for her : no beast would dare to spring,  
Even in thought, on so divine a thing.

Suddenly, lurking in the cavern's shade,  
A lion seized her, and her cries for aid  
Drew the King's wondering eyes. With grief and awe  
The monster standing o'er the Cow he saw,  
Like a red Lodhra tree whose limbs surround  
The ore-rich summit of a lofty mound.  
He seized an arrow, and his bright nails shed  
O'er its white feathers gleams of rosy red.  
Why doth he linger ? What resistless charm  
Checks his bold hand, and binds his eager arm ?  
He stood as in a picture, and his bow  
Availed him nothing though so near the foe ;

High rose his fury, but he raged in vain  
Like a mad snake that magic herbs restrain.

A greater marvel, when, with voice of man,  
The lion, holding still his prey, began :  
“ Cease to contend ! Thine arrow, launched at me,  
Though erring never, now in vain would be.  
The tree may fall beneath the tempest’s force,  
But the firm-rooted hill resists its course.

“ For know, the servant of the Lord Most High  
Who wears at will eight various forms,\* am I,  
And, when his dusky Bull he deigns to ride,  
He sets his foot upon my honoured side.  
Look yonder, King ! Before thee stands a Pine,  
Loved like a daughter by my Lord divine ;  
In its first youth ’twas gentle ŪMĀ’s joy  
To nurse it even as she nursed her boy :  
And, when an elephant once hurt her tree,  
She mourned for it as she would mourn to see  
Her own young War-God wounded by the bows  
Of Heaven’s fierce enemies, his demon foes.  
Since then, obedient to my Lord’s command,  
In lion’s form to guard this tree I stand ;  
To scare wild elephants, and feed on deer  
That, tempted by the herbage, wander near.  
Now, sweet, as to the Gods’ tremendous foe†  
The streams of Amrit from the Moon that flow,  
In her appointed hour, my destined prey,  
This Cow has come to be my feast to-day ;  
Return, O King, return ! The Saint can claim  
No further duty from thee : feel no shame :  
For loss of treasures that no might can save  
Stains not the glory of the good and brave.”  
The King no more his humbled power disdained,  
For SĪVA’s might, he knew, his arm restrained,

\* SĪva. His eight forms are earth, water, fire, air, ether, the Sun, the Moon, and the Priest who drinks the Soma-juice.

† The monster *Ráhu*, who by attempting to swallow the Moon causes its eclipses.



His conquering arm : for ne'er had mortal foe  
 Staid the fierce tempest of his vengeful bow ;  
 And even INDRA, with his hand raised high  
 To launch his bolt, was checked by SIVA's eye.  
 " Foolish," he said, " my words may seem to be,  
 Yet will I speak, for minds are known to thee.  
 That God is ever by my soul adored,  
 Maker, Preserver and Destroying Lord ;  
 But how can I, unblamed, my charge neglect,  
 This helpless creature whom the saints respect ?  
 Hear, King of Beasts, my prayer, and, if thou wilt,  
 Feed on my blood, but let not her's be spilt !  
 Her calf will mourn her at the hour of eve,  
 Then take my life ; the Cow uninjured leave !"  
 The lion with a smile his answer gave,  
 His bright teeth flashing through the murky cave :  
 " Ay, mad I deem thee, monarch, to resign  
 Thy youth, thy life, and that fair form of thine,  
 And universal empire ; these to give,  
 All these for ever, that a cow may live.  
 Dost thou love creatures ? While thy death, O King,  
 To this one cow a longer life will bring,  
 Blest by thy reign a thousand homes would be,  
 For all thy people look to only thee !  
 Live and be happy ! Power and might bestow  
 Joy like a God's, and make a Heaven below !  
 But if thou tremblest at thy master's ire,  
 And fearest anger that consumes like fire,  
 Instead of her ten thousand others give  
 With teeming udders, that thy soul may live."

The lion ceased. The mountain's hollow side  
 Echoed his counsel ere the Princee replied :  
 " What ! shall a King forsake—unkingly deed—  
 The helpless suppliant in her hour of need ?  
 Shall I disgrace a monarch's proudest name,  
 And barter glory for a life of shame ?  
 How can the gift of other cows assuage  
 The just resentment of the holy Sage ?

For she is daughter of a race divine,  
 Subdued by S'IVA'S power, and not by thine.  
 Then for her life let mine a ransom be :  
 Feed on my flesh, but let the Cow go free.  
 Still, King of Beasts, thy hunger will be staid,  
 Still will the Saint enjoy her holy aid.  
 And thou, another's thrall, dost surely know—  
 E'en as thy care of this young pine may show—  
 That servants heedless of their duty must  
 Bow down their heads in shame for broken trust.  
 Then oh, have merey, and mine honour spare !  
 A hero's body claims no hero's care.  
 Have we not parleyed in the wood to-day ?  
 And friendship springs from parley, sages say ;  
 Again I pray thee, thrall of S'IVA, take  
 This my one offer for our friendship's sake !”

The lion yielded, and DILÍPA east  
 His arms upon the earth : the spell at last  
 Had left him free : then, fixing on the ground  
 His ealm eyes, waited for the monster's bound.  
 But suddenly there came a rain of flowers,  
 Poured down upon him by the Heavenly Powers ;  
 And, sweet as Amrit, came a voice that said,  
 “ Arise, dear son !” He raised, in joy, his head,  
 And saw no lion, but that Cow as mild  
 As a fond mother bending o'er her child.  
 “ Now have I proved thy love,” she cried, “ dear son !  
 That lion was a phantom : thou hast done  
 Thy duty nobly ; for thou didst not know  
 That Death himself ean never work me woe.  
 Now choose a boon, for I have boundless power  
 On those I love all preeceious gifts to shower.”

He raised his hands, those warlike hands whose might  
 Had won a hero's fame in many a fight,  
 And begged a son, to propagate his line,  
 A son, whose glory should for ever shine.  
 “ Thy prayer is granted ;” said the Cow, “ but drain  
 My milky store, and drink, thy wish to gain.”

“Nay, when that store has fed thy calf,” he cried,  
 “And all that’s needed for the rites supplied,  
 Then, at the Saint’s command, I’ll drink the rest,  
 And deem the draught among all draughts the best.”

Pleased with his words, nor with her wanderings faint,  
 She turned and reached the dwelling of the Saint ;  
 To him DILÍPA, with o’erflowing heart,  
 The joyful tidings hastened to impart ;  
 And, though the Queen had read his looks aright,  
 He told her all again with new delight.  
 Then, at the bidding of the Saint, he quaffed  
 Of NANDINI’S pure milk a precious draught,  
 As though, with thirst that rises from the soul,  
 He drank eternal glory from the bowl.

With many a blessing, at the dawn of day  
 The guests were sped upon their homeward way,  
 After due honour to the holy flame  
 To old VAS’ISHTHA and his gentle dame.  
 Swift towards their home the eager horses bound ;  
 The car makes music o’er the grassy ground ;  
 They reach the city, where the people wait,  
 Longing to meet their monarch, at the gate.  
 Dim are his eyes, his cheek is pale, his brow  
 Still bears deep traces of his weary vow.

As on the pale new moon we bend our eyes,  
 Again appearing in the evening skies,  
 So gazed the crowds, and could not gaze their fill,  
 On him so worn, so thin, so lovely still,  
 With loud huzzas their honoured King they greet,  
 While flags by thousands wave in every street.  
 He comes, he comes ! Now will his arm again  
 The mighty burden of the world sustain,  
 Strong as the King of Serpents that upholds  
 Earth resting firmly on his endless folds.

Not mine to tell how hopeful months flew by,  
 While day by day DILÍPA’S joy grew high.  
 No tongue may say how lovely flowers of earth  
 At nature’s bidding gently spring to birth.

Blest was the hour, and all the world was gay,  
 When the sweet infant saw the light of day ;  
 A rosy glow filled all the brightening sky,  
 A pleasant breeze came breathing softly by ;  
 High in the heavens five brilliant planets shone,  
 Blessing the child they looked so kindly on ;  
 And joyful nature promised endless bliss,  
 For the world triumphs in a babe like this.

There was a glory round the infant's head,  
 That poured strange lustre o'er his mother's bed ;  
 And e'en the unlit torches seemed to shine,  
 As in a picture, with that light divine.  
 What worthy guerdon shall the maiden claim,  
 Who hailed DILÍPA by a father's name ?  
 Save but the royal emblems, she may take  
 All he possesses for her tidings' sake.  
 He fed upon the infant's face with eyes  
 Still as a lotus when no winds arise,  
 Nor could he, gazing on his child, control  
 The tide of rapture, that o'erflowed his soul,  
 As Ocean ne'er can check his billows' swell  
 When shines the full moon whom he loves so well.\*

Though bright the jewel in the parent hill,  
 The workman's art adds lustre brighter still.  
 Fair was that child, but, when all rites were done,  
 Still greater glory clothed DILÍPA's son.  
 Through the wide palace of the joyful King  
 Fair girls are dancing, song and music ring ;  
 While in the skies the Gods the rapture share,  
 And the glad music sounds in concert there.

No captive wept within the King's domains,  
 Or that auspicious day had loosed his chains ;  
 Freed is he only ; doomed no more to pine  
 'Neath the great debt he owed his fathers' line.  
 Like some young God's, that baby's face was fair ;  
 And happy as the Gods, that mortal pair.

\* The Moon, having been produced at the churning of the Ocean, is viewed by it with parental fondness.

S'ACHI and INDRA, in their home above,  
 Were not more blest in their JAYANTA'S love.  
 Not UMÁ, when her new-born darling smiled ;  
 Not S'IVA, joying in his warrior-child.  
 True as the Love-birds, in whose faithful breasts,  
 Save of their partners, not a thought e'er rests,  
 Thus had they lived ; and now this infant came  
 To share their love, and yet increase the flame.  
 What joy thrilled through him when the father heard  
 His dear boy lisping forth his earliest word ;  
 And, held and guided by the nurse's hand,  
 Saw him salute his sire and try to stand !  
 And, when he clasped his baby to his breast,  
 And trembling kisses on his lips impressed,  
 He learnt at length that inexpressive joy  
 None but a father knows who clasps his own dear boy.

Now time flew by ; he wore the sacred cord,  
 And holy men his mind with wisdom stored,  
 Till, as the Sun-God in his car on high  
 Races his storm-fleet coursers through the sky,  
 He passed triumphant through the four-fold lore,  
 That mighty sea, from shore to distant shore.

In early manhood's prime, his father's care  
 Gained him the hands of maidens young and fair,  
 Then fairer far than ever, each dear grace  
 Stealing new beauty from their lover's face ;  
 Like DAKSHA'S daughters,\* whom the Lord of Night  
 Dowers with a portion of his own sweet light.

Soon as DILÍPA saw his heir was fit,  
 In sense and learning, by his side to sit,  
 He made him partner of his royal throne,  
 And shared the weight he long had borne alone.

As Beauty seeks the opening lotus-bud,  
 And quits the flower that long has decked the flood ;  
 So Fortune left the father for the son,  
 And lived his consort by his virtues won.

\* *Daksha* had sixty daughters, of whom twenty-seven are the nymphs who form the lunar asterisms, and wives of the moon.



Who can resist the conquering flame's career,  
Whirled by the Wind, his eager charioteer ?  
Cheek the wild elephant with maddened eye,  
Or the Sun's glory in a cloudless sky ?  
And where the monarch that will dare to fight  
When such a son assists his father's might ?  
In glory thus DILÍPA's days flew by ;  
Till, longing only for his home on high,  
Mindful of duties by the Scriptures taught,  
From worldly cares he drew his every thought ;  
Resigned the white umbrella to his heir  
And all the signs of sovereign rule, to bear ;  
Then sought a tranquil dwelling, with his Queen,  
Where Hermits live beneath their leafy screen :  
For such, through ages, in their life's decline,  
Is the good custom of the Sun-born line.

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*Report on the Shalka, Fultchpore, Pegu, Assam, and Segowlee, Meteorites sent from the Asiatic Society of Bengal, (Calcutta) to the Imperial Museum of Vienna, by Dr. W. HAIDINGER, Director of the Imperial Geological Institute, (Vienna).*

(Read before the Imperial Academy of Vienna, July 19th, 1860.)

Before I transmitted these meteorites to the Imperial Museum, to be incorporated there into the general collection of meteoric stones and irons, I took care to have them cut for the better examination of their intimate structure, and to take from each of them small fragments which were entrusted to Mr. Ch. de Hauer for chemical analysis. As far as my information goes, no larger European collection possesses a specimen of any of the meteorites in question, and even their existence is scarcely mentioned in any scientific publication in Europe. They are, however, the more instructive as they exhibit within a small number of specimens, nearly all of the most important characters hitherto observed in stony meteorites. The order adopted here for their individual discussion is the same as established in *Baron Reichenbach's* "Anordnung und Eintheilung der Meteoriten" (*Poggendorff's Annalen*, 1859. No. 5, Vol. CVII. p. 155.) This disposition is founded on the affinities which the late PARTSCH established, and for which the late Ch. de Schneibers\* has proposed the denomination of "Families" (*Sippsehaften*) previously used by him in his report on the meteoric fall of Stannern. (*Gilbert's Chem.* 1808). Baron Reichenbach admits two degrees of division, "Families" and "Groups" for systematic arrangement of 99 stony and 60 iron-meteorites submitted by him to scrupulous examination, and comparison, without, however, using a special nomenclature for these divisions and subdivisions. Professor Shepard† has given denomination to his classes, orders, sections, sub-sections, and localities, but as he applied his principles of division in way of exemplification only to 9 American and 4 extra-American localities, his classification may be considered as inadequate to our present state of knowledge about meteorites.

The *Shalka* meteorite (as described by me at the meeting of the Imperial Academy, June 8th 1860) may rank undoubtedly among

\* Beitrage sur Geschichte und Kenntniss meteorischen Stein und Metall massen, und der Erscheinungen, &c. &c. Vienna, 1820, fol. p. 4.

† Silliman's American Journal, 1846, II. Ser. Vol. 2, p. 390.

*Baron Reichenbach's* Family 1, Group 1,—Langues (Chapigny,) Bishopville, Tonsae—corresponding to Professor Shepard's Chladnito—trachytic meteorites.

Here follow the four new meteorites, ready for incorporation with the Imperial Museum of mineralogy.

I.—FUTTEHPORE, (November 30th, 1822).

The first report on this fall was given to the Calcutta Medical Society by *Dr. Tytler*,\* as at Rourpore in the jurisdiction of Futtehpore 70 miles N. E. from Allahabad. Under this last locality, this meteorite is mentioned in the Proceedings of the Asiatic Society of Bengal (June 1859). Neither these Proceedings, nor *Dr. Tytler* himself mentions a more precise date than “end of November.” Professor *Shepard* has noted the date “November 30th” on the specimen in his collection. The Calcutta Museum possesses 3 specimens of 4 lb. 3 oz. ; 3 lb. 8½ oz. and 1 lb. 4½ oz. weight ; the last has been transmitted to the Vienna Imperial Museum. It arrived with a weight of 1 lb. ⅝ ounces Vienna weight. Another specimen in the Calcutta Museum of 12½ ounces weight, labelled, Bithour and Shapur, 75 miles N. W. of Allahabad, November 30, 1822., is certainly not identical with the Futtehpore specimen, although I could not make out whether the same meteoric fall spread fragments at a distance of 100 miles, or whether the whole statement rests on a typographical error.† In fact, a real meteoric shower took place. Doctor Tytler states the stone, whose fall he witnessed, and which he gathered still hot, to have weighed 1 lb. 6 ounces. The observation of the fall had been complete: shortly before sunset a luminous body surrounded by a red globe of moon-like aspect seemed to come down the air near Futtehpore spreading sparks as it went on; and a thunder-like noise was heard. Near Hazaribagh 250 miles E. of Allahabad, the light of the globe was visible through a veil of clouds covering the sky. Professor C. M. *Shepard*, gave notice of the phenomenon, and the stone of Futtehpore to the Meeting of the

\* Edinburgh Journal of Science, No. 15, p. 171, 1828. Kämtz und Schweiggen. Seidel's Jahrbuch der Ph. Ch. und Physik Vol. XXIII. (LIII.) p. 471—Pogendorff's Annal: 1830, Vol. XVIII. p. 179.

† [There seems to be some error in our records, which cannot now be rectified. The Futtehpore, near which lies Rourpore, is 70 miles N. W. of Allahabad, while Bithour and Shapur are near another Futtehpore about 130 miles N. W. of Allahabad.—Eds.]

American Association for the advancement of Science (New Haven, August, 1850). The fall took place at  $25^{\circ} 57'$  North Latitude, and  $80^{\circ} 50'$  E. Long. One of the stones had a weight of 22 lb. Professor Shepard saw in 1849, a stone of 2 lb. in possession of Mr. Thomas MacPherson Grant of Edinburgh, from whom he obtained a fragment of it. The learned Professor describes it, as being fine-grained, traehytoid, and resembling the meteorites of Poltawa (March 12th, 1811) and of Cashin in Maine (May 20th, 1848), (See *Silliman's American Journal*, 11 Ser. Vol. XI. p. 367.—*Edinburgh Phil. Journal*, Vol. VIII. October, 1852, p. 245. *Poggendorff's Annalen*; *Boguslawsky's Zehenter Nachtrage &c.*, Supplement Vol. IV. p. 22, 1854).

The fundamental substance of the Futtehpore meteorite is of a light-ash grey, fine-grained, with dispersed yellowish brown rust-like spots on the broken surfaces. Lamellæ of iron pyrites run through the substance like as many miniature veins; some of them being made visible by fracture; they are reddish, brass yellow like magnetic iron pyrites. When ground and polished, the surface shews numerous particles of metallic iron of different sizes; the largest of them being  $1\frac{1}{2}''$  in length and  $1''$  in breadth. Crevices or fissures now filled up with solid matter, intersecting each other under distinct angles, run through the substance in various directions; some capillary fissures are filled with the dark-coloured substance of the crust; others of equal tenuity probably with metallic iron or magnetic pyrites. These fissures run on the whole surface laid bare by cutting the stone through a length of above 2 inches; and through the whole thickness of the stone. They shew intersections, junctions, derangements, just as metalliferous veins shew on an infinitely larger scale. Metallic particles have occasionally a section of  $3''$  in length. The abovementioned rust-like spots appear on the sections, in an isolated situation, generally spreading along the sections of fissures or surrounding metallic particles. The substance in itself soft and friable, includes in some places larger or smaller globules made visible by section. One of these globules, about  $1\frac{1}{2}''$  in diameter, greyish white, compact, includes laterally a small quantity of iron, surrounded with a yellowish brown spot, not continuing into the surrounding soft substance, which, however, shews plenty of similar spots. Other globules, opaque when cut through, seem to be

softer than the surrounding substance, and the iron within them is distributed in a different way. Several globules have darker grey tints; one of them  $1\frac{1}{2}$ ''' in diameter is positively dark-grey. Several of these included corpuscles are of angular, not rounded, section, occasionally with plate-like bright planes indicative of crystalline structure.

The crust is brownish-black, opaque, with here and there isolated or grouped, roundish shallow depressions not referable to the figure of the stone, as they appear only in a fragment. Short fissures cut the cortical surface into angular irregular tablets of  $\frac{1}{2}$  to  $\frac{1}{4}$  of an inch in diameter. On the surface of fusion, some fissures or included globules of the inner substance are perceivable by aid of lens.

The crust, less than  $\frac{1}{24}$  of an inch in thickness, includes, occasionally particles of metallic iron—I found the specific weight = 3.526 at a temperature of 17° R. Dr. Tytler in his accurate description gives 3.352—4.281, a difference depending on the unequal distribution of metallic particles.

The Futtehpore stone ranks undoubtedly among Dr. Reichenbach's Family 11, group 1 (whitish meteorites without included distinct globules of darker colour) together with the series of 22 meteorites from Nashville to Asco comprising those of Manerkirchen, Milena, Wold-cottage, &c. A fragment of the Zaborzika meteorite, preserved in the Imperial Museum of Vienna is scarcely distinguishable as to its exterior aspects from the Futtehpore meteorite.

The specimen most kindly transmitted by the Asiatic Society Calcutta, has been cut into two, to gain a better knowledge of its internal constitution. The crust spreads over about  $\frac{1}{2}$  of the stone, the rest being laid bare by fracture. One piece weighs  $13\frac{5}{8}$  ounces, the other  $2\frac{1}{2}$  ounces.

## II.—PEGU, (December 27th, 1857).

The substance of this meteorite is light-grey, with a bluish tint, consisting entirely of isolated round globules, or granules, easily separable and as it were, imbedded into white sand, the whole being of a nearly friable consistence, and so easily broken that any section would have been impracticable, without a previous immersion into a hot solution of Silicate of Potash (*Fuchs's wasserglas*) and subsequent desiccation as used at Vienna since 1846, for frangible and



delicate fossil-remains. The polished section shews the whole substance to be a nearly homogenous compound of single granules very different in form, some of circular, others of angular section, varying in colour from dark smoke-grey, to nearly greyish white: the largest among them not above  $\frac{1}{2}$  inch in diameter. Metallic iron, and a yellowish sulphuret of iron, in atoms too minute to admit of specific determination, are distributed in very minute particles and rather inconstant proportion through the whole substance. A stratum of magnetic pyrites, of the colour characteristic of this mineral species, runs vein-like through the whole of the fine-grained loose substance; it forms a lamina of about 2 inches in length  $\frac{3}{4}$  inch in breadth, and about  $\frac{1}{24}$  inch thick, growing gradually thinner towards both ends. The presence of such a lamella of heterogenous substance offers a strong argument in favour of its formation having taken place amidst a larger mass (as it were, a massive rock), while the whole incorporated into a larger body went through several stages of evolution, and especially a pressure took place perpendicularly to the fissure, while the now filled in crevice was in course of formation; the whole mass simultaneously contracting itself in a direction perpendicular to the place of the laminæ, and so causing a separation of particles, and consequently a vacuum, subsequently filled with crystalline magnetic pyrites.

The crust is opaque, greyish-black, with a brownish tint. The specimen in question shews more of the interior than of the cortical substance, being probably a fragment of a larger meteorite of perhaps above 20 lbs. in weight. The thickness of the crust is not above  $\frac{1}{48}$  of an inch.

Specific weight 3.737.

The Pegu meteorite may well find its appropriate place in *Baron Reichenbach's* group 2. (Meteorites with dark globules interspersed with others of lighter colour) next to the meteorites of Lucé, Nanjemoy, Aussun, Benares, Tipperary, Cereseto, Weston, &c.

The original weight of the fragment kindly transmitted by Mr. Oldham, was 1 lb.  $\frac{3}{8}$  ounces. Friable and creviced as it was, a cutting into two pieces became unavoidable, the smaller fragments being reserved for chemical analysis. Three fragments of  $9\frac{3}{4}$ ,  $4\frac{7}{8}$  and  $\frac{6}{9}$  ounces in weight, are ready for delivery to the Imperial Museum;

the two first of them with natural fracture, and crust: the third with a polished surface of about a square inch.\*

### III.—ASSAM (Found 1846).

The only notice concerning this meteorite is to be found in the Journal of the Asiatic Society of Bengal (Vol. XV. Proceedings June, 1846, p. 46, and 76, and Vol. XXVIII. Proceedings June, 1859.) The place of its fall is still unknown. The late Mr. Piddington found it, in September 1846, among the collections of the Coal and Iron Committee, containing but few specimens other than those collected in Assam, and he inferred from this circumstance that the meteorite had actually fallen in that country. Three fragments of 1 lb.  $8\frac{3}{4}$  ounces, and  $7\frac{1}{2}$  ounces, were found; two of them evidently fragments of the same stone; the third similar in composition but certainly once a part of a different stone. According to Mr. Piddington, one of the fragments is richer in cobalt and poorer in nickel while in the other the latter metal prevails. Mr. Piddington most adequately described the Assam meteorite as being “beautifully marbled.” It is remarkably firm and compact, taking a fine polish like the meteorites of Seres, Barbotan, Mezö-Madaras, Chantonney, and other compact and firm meteorites of *Bn. Reichenbach's* III. Family. Baron Reichenbach has placed the stones of Chantonney, and Mayence in his VI. Family on account of their larger brown spots, nevertheless Partsch's description (*Die Meteoriten* 1843 p. 38,) and the original specimen in the Imperial Museum bear a striking resemblance to the Assam meteorite. The term marbled is used in Partsch's, as in Piddington's description. The fundamental substance is of a light grey. It includes lighter grey fragments of irregularly rounded outlines of about  $\frac{1}{2}$  square inch; then numerous more or less spherical (to judge by their section) particles, others smaller and quite black together with light ash-grey particles of various size. The included light grey fragments include again smaller brown particles, and others, yellow and white, of metallic nature; all of them of a fragmentary aspect.

Atoms of metallic iron, (here and there larger granules of  $\frac{1}{48}$  of an inch in diameter) and magnetic pyrites, both in nearly equal

\* Much more detailed particulars as communicated by Mr. Oldham to Dr. Haidinger, were given to the Imperial Academy of Vienna in November,

proportion, are spread through the darker and lighter stony substances. As in other meteorites of the same category, iron particles accumulate occasionally around the included globules, as in some amygdaloid rocks, green earth (decomposed angite) accumulates around the included minerals, or in the cavities left after their decomposition. It may be inferred from this remarkable fact, that during the gradual solidification of the meteorite when the globules were already included in the fundamental substance, the iron particles, dispersed in it, underwent a change of place. Similar phenomena observable in our terrestrial rocks may be conveniently explained by supposing the existence of subterranean solvents, either water, or compounds of chlorine, fluor, and sulphur, assisted in greater depths by the increasing internal heat. With reference to meteorites, it may be sufficient here to state this curious fact, recommending it earnestly to further investigation.

The crust is dark greyish-black, in some places with a slight indication of beginning brightness; and very thin. No indication of the direction followed by the stone in its flight, or its downfall is to be found on it, as we have before us but a fragment, although probably the most considerable, of an entire stone. The portions, however, probably answering to the anterior and posterior sides of the stone, bear rounded shallow impressions. Specific weight at a temperature of  $17^{\circ}$  R. = 3.792.

The specimen kindly transmitted by the Asiatic Society of Bengal has been cut into two pieces of 4 oz. and  $1\frac{3}{8}$  oz., ready to be delivered to the Imperial Museum. Both these specimens shew more of the crust than of the interior substance, and are perfectly polished on a surface of about two square inches.

#### IV.—SEGOWLEE (*March 6th*, 1853).

No specimens of this meteorite have hitherto found their way to Europe, nor is it mentioned, either in Mr. *Greg's* accurate essay, (with MSS. supplements from the author to June 1859) nor in Prof. Shepard's index, (continued in MS. to November 1859) nor in Dr. O. Buchover's book on igneous meteors 1859, nor in any other European book or periodical. The only notices at present known, exist in the *Journal of the Asiatic Society of Bengal* (Vol. XXIII. p. 736, 1354—Vol. XXIV. p. 247, 1855—and Vol. XXV. p. 169, 1856.) The

first specimen of this meteorite shower, a fragment of  $7\frac{1}{2}$  ounces was sent (November 24th, 1854,) to the Society from Patna by Capt. W. S. Sherwill, Rev. Survey; who had received it from Mr. F. A. Glover, C. S., Joint Magistrate of Chumparun, together with the first notice about the fall, on March 4th, (March 6th, according to later reports) about noon. A man and a boy had heard next to their stand a heavy body falling to the ground, without any other extraordinary noise. They gathered up several of the fallen stones, and brought them to their small village, some few miles S. of Segowlee, where they soon came into the hands of some irregular sowars stationed there. The Adjutant of the corps, Lieut. Macdougall, presented Mr. Glover with a large stone. This gentleman subsequently obtained two other small specimens, and saw about thirty of them gathered in a short time on the surface of one square mile. The second specimen of 1 lb.  $2\frac{1}{2}$  oz. was also presented to the Society by Mr. Glover.

Segowlee, (also written "Soojowlee") is on the Katmandoo road seventeen miles east of Bettiah. In February, 1856, a specimen of 14 lbs. presented by Mr. A. Grote, was exhibited to the Society, and it is from this that the Imperial Museum has obtained, by the kindness of the Society, a fragment weighing 2 lbs. 3 oz. and a plaster cast of the very remarkable external configuration of the whole stone. Dr. Evan MacDonnell had acquired this specimen, immediately after the fall. As the Doctor reported, three officers of Irregular Cavalry had heard in their station a peculiar rumbling noise quite different from thunder. The same noise was heard, at Bettiah, by an Italian clergyman and many natives; also by another Italian missionary six miles N. W. of Bettiah; and it spread considerable terror. It was compared to the rumbling of carriages on a paved road, and lasted about forty seconds, the sky being meantime cloudless; the sun shining brightly, wind W. Ther. by day  $44^{\circ}$  F. ( $4^{\circ}$  R.) All the stones are of nearly pyramidal form, their weight varying between  $\frac{1}{2}$  and 4 lbs. : only one weighed 14 lbs.

The Segowlee stone now in Vienna bears no resemblance to any meteorite preserved in our collections. Its colour like that of the Mayence meteorite is throughout a reddish-brown. The Mayence specimen discovered by Dr. Gergens, and subsequently analysed by

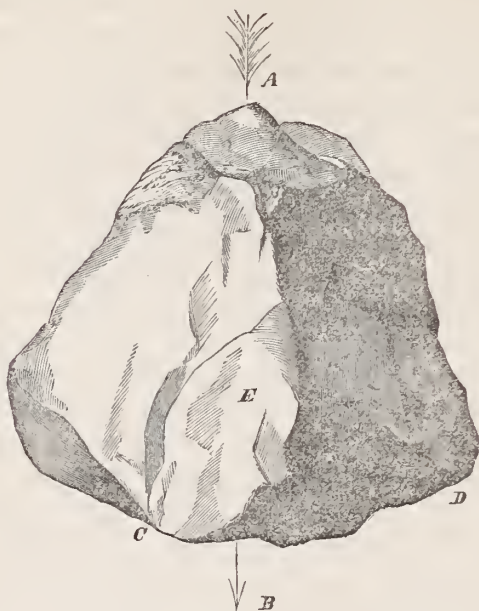
F. Seelheim (Jahrbucher des Vereinz für Naturkunde im Herzog : Nassau, 1857, Vol. 2, p. 405,) was presented by the discoverer to Dr. Haidinger who incorporated it with the Imperial Museum. Baron Reichenbach very properly remarks, that the brown colour as described by M. M. Gergens and Seelheim can in no way be the result of subsequent terrestrial decomposition. The stone, however, had been found underground, without any notice about a fall having recently taken place in the environs of Mayence, and its external surface had in fact suffered from beginning decomposition. The Segowlee meteorite had been taken up immediately after its fall. The brown substance although very solid, is anything but homogeneous. As in other meteorites, it includes portions of circular or angular transverse section, of darker or lighter tints, greater or less hardness interspersed throughout with minute particles of metallic iron and magnetic pyrites; here and there of somewhat larger size. The largest granule of magnetic pyrites is about  $\frac{1}{6}$  inch in length and  $\frac{1}{12}$  inch in breadth: the largest iron granule is about  $\frac{1}{4}$  of this size. The substance is intersected by numerous fissures, not running straight as genuine crevices, and like those of the Futtehpore meteorite, but bearing rather the character of solutions of continuity, surrounding more coherent nodular portions. Where a corner of the large 14 lbs. meteorite is struck away, the plane of fracture is coarse, grossly nodular, like rusty iron and resembles as Baron Reichenbach very justly remarks, "a lump of poor brown iron ore." The hardest among the globules are prominent above the surfaces laid bare by real fracture.

The crust is very thin, nowhere above  $\frac{1}{8}$  of an inch; dark reddish-brown generally opaque with a darker blackish tint, and some little lustre on the plainer portions of the surface, and on the rounded edges, as it may be supposed to be in a substance refractory to fusion.

The form of the large Segowlee specimen, as shewn in the cast which we owe to the kindness of our respected friends, deserves particular attention. It indicates clearly that the meteorite moved in the direction A. B. (see wood cut), the centre of gravity lying visibly within the thicker portion. Waves of shallow rounded depressions are particularly to be recognized on the posterior pointed and lighter extre-



mity A. The inferior, or basal surface is remarkable for its evenness. Compared with an exactly straight line, its section, on a length of 4



inches deviates only for  $\frac{1}{6}$  inch, and in a direction perpendicular to the first for only  $\frac{1}{24}$  inch. The fragment sent to Vienna has been separated along the line C. D. A cut has been made parallel to the plane E, and a smaller portion has been so separated; the area of the polished surface is 6 square inches on the larger fragment (1 lb.  $3\frac{1}{2}$  oz.) and 4 inches on the smaller one ( $3\frac{3}{8}$  oz.).

I must now conclude with expressing my warmest thanks to the Societies and gentlemen of Calcutta, who have so kindly accepted and put into execution my project of exchange. Director Hörnes of the Imperial Museum is now ready to prepare the objects to be sent to Calcutta in exchange.

The investigations on the iron found on the top of the Kurruk-poor hills are still to be brought to a conclusion. Mr. Chas. de Hauer is preparing the report of his chemical investigations, to be reported at the reopening of the Academy in October.





*Note on Budhagupta.*—By FITZ-EDWARD HALL, ESQ., D. C. L.

My paper on the inscriptions at Eran,\* printed in the last number of this Journal, was put together and sent to the press while I was travelling on official duty. The present supplement, or, at least, the bulk of it, the marginal citations excepted, might have accompanied the substantive article, if, when previously writing, the work had been by me, on certain passages of which I am about to make a few comments.†

In the paper adverted to I have said: “It is, therefore, all but demonstrably certain that Budhagupta was reigning on Thursday, the seventh of June, in the year of our Lord one hundred and eight,

\* Can this be one of the places to which Junaid despatched an expedition of filibusters? Two of those places, Arín and Málía, are supposed, by M. Reinaud, to be Ujjayiní and Málava; and a third looks as if it were Maṇḍala. But all is here exceedingly uncertain. According to Beládoní, the Arabs, in order to reach Málía, had to pass through Arín. To take a circuitous route was, perhaps, a dictate of prudence. If the second vowel of Aríu got shifted, by accident, to the front of the first consonant, we may have Eran. See Sir Henry M. Elliot’s *Appendix to the Arabs in Sind*, pp. 205, 206.

† If I had had access, at the time, to a respectable Sanskrit dictionary, I should not have called *pitarām anujátasya* a ‘hoary solcism.’ Messrs. Böhtlingk and Roth, in their *Sanskrit-wörterbuch*, refer, under *anujáta*, to the ensuing couplets of the *Panchatantra*:

जातः पुत्रोऽनुजातश्च अतिजातस्तथैव च ।  
अपजातश्च लोकोऽस्मिन् सन्तत्याः शास्त्रवेदिभिः ॥  
मादृतुल्यगुणो जातस्त्वनुजातः पितुः समः ।  
अतिजातोऽधिकस्तस्मादपजातोऽधमाधमः ॥

‘By those who are acquainted with the scriptures a son is to be understood, among men, to be *játa*, *anujáta*, *atijáta*, or *apajáta*.

‘He whose qualities are similar to his mother’s is a *játa*; an *anujáta* resembles, in qualities, his father; an *atijáta* surpasses him in the same respect; and an *apajáta* is, in comparison, utterly base.’

Messrs. B. and R. render *játa*, as it occurs above, by *schlechtweg nur geborner*. Professor Benfey gives *geburt*, in his translation of the *Panchatantra*, Vol. II., p. 113.

*Anujáta* appears to be a synonyme of *manojavasa* and *pitrísannibha*, which Professor Wilson erroneously defines by “fatherly.” Kshíra Swámin’s explanation is *pileva samyak vibhátí*.

new style. Toramána must have flourished shortly after him; with something of likelihood, indeed, as his next successor. To Budhagupta's registration, relatively to the other Guptas, we have not the smallest trustworthy clue."\* When pronouncing thus confidently, I was quite aware that wholly different conclusions had been come to, by Professor Lassen, as to every item of what has just been quoted. The grounds on which that learned orientalist has built those conclusions will now be examined.

On the first occasion where he treats of the Gupta monarchs, in 1852, he expresses himself to the following effect :

"A safer basis for fixing the time of the Guptas is furnished by their own inscriptions. In that of Budhagupta—on a pillar at Eran, near Saugor, in Málava—mention is made of the one hundred and sixty-fifth year of an unspecified era. \* \* \* Judged by the style of the writing, that inscription is of a period, in his dynasty, more modern than that of Samudragupta and Skandagupta. Scarcely can the era in question be any other than that spoken of, by Albirúní, as having begun in the year three hundred and nineteen after Christ ; †

\* *Fide supra*, p. 15, foot note.

† And so concludes Col. Cunningham, says the Professor, in a foot-note. The passage which he has in view is as follows, from this Journal, for 1848, pp. 487, 488 :

"In his mention of *Ma-kiei-tho* or *Magadha*, Hwáng Thsáng gives the names of five kings who reigned there previous to his visit. Their names are :

<i>So-kia-lo-a-yi-to</i>	or <i>S'ankaráditya.</i>
<i>Fo-tho-kiu-to</i>	<i>Budhagupta.</i>
<i>Tha-ka-ta-kiu-to</i>	<i>Takatagupta.</i>
<i>Pho-lo-a-ye-to</i>	<i>Báláditya.</i>
<i>Fa-che-lo</i>	<i>Vajra.</i>

"Of the second, fourth, and fifth of those princes there are coins still existing to testify to the truth of the pilgrim's narration. But we have yet more explicit evidence of his accuracy in the date of Budhagupta's inscription on the Eran pillar. This date is 165 of the Gupta era, which, as we learn from Abú Rihán, commenced in A. D. 319. The date on the pillar is, therefore, equivalent to A. D. 484. Supposing that Budhagupta reigned until A. D. 500, and that the three following princes occupied the throne during the 6th century, we have the date of A. D. 600 as the earliest limit of the period of Hwáng Thsáng's visit."

Some of the Sanskrit names here proposed as answering to those in the Chinese, show themselves in an altered shape in Col. Cunningham's *Bhilsa Topes*. The changes will be seen in a coming note.

and it is perfectly obvious that he has confounded this later dynasty, whose realms were confined to the north of the Vindhya, with the ancient one, that of Suráshtra, which preceded the kings of Balabhi. This view derives corroboration from an unpublished inscription\* of the Guptas, by which it appears that their domination subsisted from the second century to the fifth.”†

Five years elapse, when, having reached the point where the subject in hand, agreeably to his chronological speculations, demands a detailed consideration, the Professor returns to it. After complaining of the poverty of materials available for constructing a history of what are called, by him, the ‘later Guptas,’ he goes on to say, prefatorily :

“ Only a single inscription of any potentate of their dynasty has as yet come to light ; that of Buddhagupta, which is dated in his hundred and sixty-fifth dynastic year, or A. D. 484. The more is this to be lamented, as it is certain that there exist, in India, inscriptions of rulers belonging to this family, which lasted from the second down to the fifth century.”‡

The next extract to be made completes almost all that our author has to say, bearing directly on the topic under discussion, which it

\* The authority for the matter of this sentence consists in these words, from a letter of the late Major Kittoe to Colonel Sykes :

“ I have had four valuable copper-plates, from Nagode, in Bundulkund, of Sri Hastina, a cotemporary of Samudra Gupta ; for he is named, by the latter, in the Allahabad Inscription (see J. A. S. B.), translated by Mill. These plates fix the number of years passed of the Gupta Dynasty at that time, viz., 163. This will prove the correctness of the *Vans’ávalí*, as given on the pillar, and will prove, I think, that the Guptas reigned from the second to the fifth century A. D.” Journal of the Royal Asiatic Society, Vol. XII., p. 12, foot-note.

For the actual contents of Hastin’s land-grants, see my paper on them, pp. 1—13, *supra*. There is not a shadow of proof that Hastin was one with the Hastivarman of the Allahabad pillar ; the plates—now that we know from what event the Gupta era is to be counted—show, unanswerably, that the former came long after Samudragupta ; and the Major’s inference, adopted so readily by Professor Lassen, that the Guptas enjoyed power to the fifth century, has no foundation whatever in his data.

† *Indische Alterthumskunde*, Vol. II. p. 751.

‡ *Ibid.*, Vol. III., p. 652.

seems necessary to reproduce. Premising the name of S'akrāditya, he remarks :

“ His son Buddhagupta succeeded. \* \* \* None but very meagre indications relative to his reign are to be drawn from the inscription where he is commemorated, which bears date in the year 165 of the Gupta era, corresponding to A. D. 484. From this date the time of his rule may be gathered with some certainty. If we suppose that he ascended the throne in 460, and that Chandrapriya\* had been king till about 435, the interval from this year to 460 is adequately supplied by the reign of S'akrāditya. The [other Eran] inscription states that Dhanyavishṇu, brother of the late king Mātrivishṇu, son of Harivishṇu, and great-grandson of Indravishṇu, consecrated a temple to Nárāyaṇa in his aprine epiphany. This was in the first year of the sovereignty of Tárápāṇi,† on the tenth day of the month of Phálguna, or on the twenty-fifth of February. That Tárápāṇi is designated as paramount king of the king is, indubitably, to be set to the account of adulation on the part of his vassal; and Tárápāṇi turns out to have been only Buddhagupta's viceroy in Bhopal, or Eastern Málava. The monumental column was erected by Vaidalavishṇu, a younger brother of Maitráyaṇa;‡ and the cost of the whole undertaking was defrayed by Dhanyavishṇu. This was on the thirteenth day of the month of A'shádha, or at the end of June, in

\* It is a sheer guess, and a wrong one, that Chandrapriya was predecessor of S'akrāditya. He was wanted as a link: and nothing more need be said of him. The name, according to Professor Lassen, can be only another form of the more usual Chandragupta. *Indische Alterthumskunde*, Vol. III., p. 655.

† I remarked, at p. 15, *supra*, that the fact of the Eran column's reading Toramáṇa, not Tárápāṇi, “if my memory does not fail me, was detected by Mr. Thomas.” It did fail me. Colonel Cunningham it was that discovered the right word. See his *Bhilsa Topes*, p. 164.

‡ In justification of this, we are told, designedly as corrective of Mr. Prinsep: ‘In place of *Maitráyaṇa-kṛipabhasya* must be read *Maitráyaṇa-kulajasya*, *i. e.*, born in the family of Mitra.’ But Maitra would stand between Maitráyaṇa and Mitra; and, besides, Mr. Prinsep has *Maitráyaṇáya*. As shown at pp. 18 and 19, *supra*, the column exhibits *Maitráyaṇíya-nṛipabhasya*. This I hastily rendered ‘of the illustrious Maitráyaṇíya monarchs.’ As a substitute should, no doubt, be put ‘star of the Maitráyaṇíya monarchs;’ and all but the first two sentences of my appended annotations is to be cancelled.

Also see the end of the fourth note forward.

the one hundred and sixty-fifth year of the eminent king Buddha-gupta," &c. &c.\*

Before I proceed to criticize the foregoing statements and deductions, a reference must be made to Hiouen-Thsang, the energetic Buddhist pilgrim who traversed India in the first half of the seventh century. Descanting on a division of Hindustán, no doubt Magadha, he enumerates several Buddhist kings that once governed it, of whom the first appeared 'soon after the *nirvána* of Buddha.'† These, in the sequence of their descent, were S'akráditya, Buddhagupta, Tathá-gata, Báláditya, and Vajra.‡ Their inferential antiquity I shall investigate further on.

It is the second of those kings, Buddhagupta, whom Professor Lassen identifies with the Budhagupta of the Eran monument. The latter, as may be seen above, is called by his correct appellation where the Professor first names him. Everywhere subsequently, however, he changes Budhagupta into Buddhagupta, and that without so much as hinting the transformation.§ That Budhagupta is read at Eran, I possess the evidence of my own eyes, with Captain

\* *Indische Alterthumskunde*, Vol. III., pp. 659, 660.

† *Peu de temps après le Nirvána du Bouddha*.

‡ *Voyages des Pèlerins Bouddhistes*, Vol. I., pp. 149, 150; Vol. III., pp. 41-44.

§ Was this bold metamorphosis unconscious on the part of the Professor? For, in speaking of the sovereign of the Eran column, he says, in the *Indische Alterthumskunde*, Vol. III., p. 661: 'As concerns the religion of that mighty monarch, credit must be given to Hiouen-Thsang, who makes him to have been warmly devoted to the creed of S'ákyamuni; as, in truth, is argued by his name, 'the Protected of Buddha.' This does not, however, hinder him from manifesting due consideration for the Hindu subjects of his vast territory. His viceroy Tárápáni he invests with plenary political control. Tárápáni, and so his predecessor, who sprang from the unknown Rajput family of Mairáyaṇa, appear as zealous worshippers of Vishṇu.'

From the very look of the word, Professor Lassen ought to have discerned that Mairáyaṇa could not be the proper name of any one who was living in the days which produced the inscription. Incontestably, it is of Vaidika origin and of the Vaidika age. In the Veda, Mairáyaṇíya denotes a *charaṇa*, not a *gotra*. At Eran it may denominate a family, without defining its scriptural school. But, if so, that family was, by overwhelming likelihood, not of the martial tribe, but Bráhmanical.



Burt's lithographed faesimile to second it. In fact, only the Professor's unconfessed guess is adverse. A Buddhist Budhagupta is a high improbability, on the one hand; just as, on the other hand, would be a Hindu Buddhagupta.\* At the gentlest touch, therefore, the Professor's theory falls to the ground.

But, independently of the orthographical difficulty fatal to his assumed identification, it is not without resort, at every stage, to measures of more or less violence, that he introduces seeming harmony among invincible incongruities.

The implication that the paleography of the Eran column† marks an age posterior to that of the monuments which record the names of Sumudragupta and Skandagupta, cannot be admitted. The letters of Hastin's grants, when compared with those employed on the monolith of Samudragupta, are seen to be, in some particulars, apparently of a more antique confirmation. At the same time, Hastin was, unquestionably, later than Samudragupta by a good number of generations.‡ But the case is widely different as concerns the symbols found on the Eran column; and I expressly challenge the instancing, from it, of a single character of an aspect more modern than what the same character wears on the monument of Samudragupta. As for Skandagupta, inasmuch as he was one of Samudragupta's successors, and, especially, since the memorialist who eulogizes his power lived a hundred and forty-one years after the extinction of his kingdom, to dwell here on the writing of the second inscription adduced by Professor Lassen would be altogether superfluous.

When Mátṛivishṇu and Dhanyavishṇu, elder and younger brothers, set up the Eran column, their liege was Budhagupta. Some years after, Mátṛivishṇu having died in the meanwhile, Dhanyavishṇu erected a temple to Náráyaṇa. In the inscription on its chief idol, he makes mention of Toramáṇa, and in terms which, equally with those

\* Of the two coins which Mr. Thomas assigns to Budhagupta, one seems to leave very little scope for hesitation. See the *Journal of the Royal Asiatic Society*, Vol. XII., pp. 70, 71, and Plate II., figure 55; also this *Journal*, for 1855, p. 512.

† Mr. Thomas says that the *í* is symbolized in one way in one of the Eran inscriptions, and in another way in the other. The difference he contends for I am unable to perceive. See this *Journal*, for 1855, p. 517.

‡ *Vide supra*, p. 5.



that the column applies to Budhagupta, attest acknowledgment of him as sovereign lord. But this, unreservedly asserts the Professor, was mere flattery; for Toramána was but Budhagupta's lieutenant.\* Were Toramána allowed to have sat on Budhagupta's throne, of course it would be impossible to provide kingship for Buddhagupta's son Tathágata.

Of Toramána's having been a paramount king there is, moreover, pretty conclusive proof, apart from the testimony of the Eran boar. By the kings of all ages the minting of money has been jealously reserved as a royalty; and Toramána is known to have coined copper. This fact having been made public upwards of a year before Professor Lassen thought fit to uncrown Toramána, it is somewhat singular that it did not meet his eye in time for a note.†

We have been told of Dhanyavishṇu's obsequiousness. And, if Dhanyavishṇu must adulate, to stay up a theory, no less must Albirúní opportunely go astray for the same end. To him only one race of Gupta kings was known; and their line came to a close, he

\* "We learn from the inscription on the colossal *Varáha Avatár*, at Eran, that the paramount sovereign Toramána possessed all the country about Bhupál and southern Bundelkhand, not many years after the elevation of Budhagupta's pillar; for the pillar was erected by Vaidalavishṇu, at the expense of his cousin Dhanyavishṇu; while the colossal Boar was set up by Dhanyavishṇu himself. The death of Budhagupta, and the accession of Toramána, therefore both took place during the life-time of Dhanyavishṇu. But there must have been an interval of some years between the two events; as Dhanya's elder brother, Mátrivishṇu, who is not even mentioned in the pillar inscription, had since assumed the title of Mahárája, and was then dead. Dhanya himself then became regent, apparently to the young prince, Toramána; for, in another inscription, from the Fort of Gwalior, I find Toramána described as the son of Mátridása and the grandson of Mátrikula, who is probably the same as Mátrivishṇu. As the celebrated hill of Udayagiri is mentioned in the Gwalior inscription, there can be little doubt of the identity of the two Toramánas, and of the consequent extension of the principality of Eran to the banks of the Jumna." Col. Cunningham's *Bhilsa Topes*, p. 164.

Much of this would be very plausible, provided Mr. Prinsep's translations were not incorrect. Professor Lassen, with all his tampering, is not half so specious. The inscription from the Gwalior fort ought to be put in print.

† See this Journal, for 1855, pp. 514—517. Colonel Cunningham's rectification of Tárápáni to Toramána was before the world two years sooner; but Professor Lassen passes it unnoticed.

alleges, in A. D. 319. The Professor does not venture to deny, though he might do so safely, that Albirúni had heard of his 'later Guptas;' but he charges the Arabian, implicitly, with having fused the two dynasties into one. On this view, we have presented to us the curious phenomenon of one dynasty dating its edicts from the overthrow of another, out of which it had arisen, and which bore the same name with itself.\* A far more probable opinion, as for Albirúni, is, that he was totally unacquainted with the 'later Guptas;' and it is not surprising that it was so. If they lived on the hither side of the 'elder Guptas,' what has become of all their specie? But it is needless to dilate. Incredible as it may sound, if Professor Lassen had read, in Hiouen-Thsang, less than two pages after that in which

\* Of his 'later Guptas' Professor Lassen writes: 'The founder of their power must have appertained to the family of which the last representative known to us is Mahendragupta. He reigned till about A. D. 280.' *Indische Alterthumskunde*, Vol. III., p. 652.

Mahendragupta, as differing from Kumáragupta, is still to be proved not a nonentity. Is not the word *mahendra*, found on some of Kumáragupta's coins, a substitute for *mahárāja*?

It will prove useful here to tabulate the Gupta kings, consonantly to the views of two writers who have made them a subject of special study.

Col. Cunningham.		Professor Lassen.	
<i>Continuous series.</i>	A. D.	'Elder Guptas.'	Cir. A. D.
I.—Gupta. ..	319	I.—Gupta. ..	160
II.—Ghaṭotkacha. ..	340	II.—Ghaṭotkacha. ..	168
III.—Chandragupta I. ..	360	III.—Chandragupta I. ..	195
IV.—Samudragupta, <i>Parákrama</i> .	380	IV.—Samudragupta. ..	230
V.—Chandragupta II., <i>Vikramáditya</i> . ..	400	V.—Chandragupta II. ..	240
VI.—Kumáragupta, <i>Mahendra</i> .	430	VI.—Skandagupta or Kumáragupta. ..	270
VII.—Skandagupta, <i>Kramáditya</i> .	440	VII.—Mahendragupta and Náráyanagupta. ..	280
VIII.—————— <i>Lagráditya</i> or <i>Lokáditya</i> . ..	452	'Later Guptas.'	
IX.—Buddhagupta. ..	480	I.—Devagupta. ..	400
X.—Taktagupta. ..	510	II.—Chandrapriya. ..	435
XI.—Naragupta, <i>Báláditya</i> . ..	540	III.—S'akráditya. ..	460
XII.—Vajra. ..	570	IV.—Buddhagupta. ..	490
		V.—Tathágatagupta. ..	505
		VI.—Báláditya. ..	530
		VII.—Vajra. ..	540

See the *Bhilsa Topes*, p. 141; and the *Indische Alterthumskunde*, Vol. I., Appendix, p. xxx., and Vol. II., pp. 1161, 1162.

Mr. Thomas gives the Guptas thus: I. Gupta. II. Ghaṭotkacha. III. Chaudragupta I. IV. Samudragupta. V. Chandragupta II. VI. Kumáragupta. VII. Skandagupta. VIII. Budhagupta. He appends no dates. See his edition of Mr. J. Prinsep's *Essays on Indian Antiquities*, Vol. I., p. 276.

Budhagupta is genealogized, he would have seen reason for relegating that pious prince, on the faith of the Chinese traveller, to a hundred years, at the very least, prior to the beginning of the Christian era : and he has determined him to A. D. 490.\* That the Buddhist Gupta kings once had existence, we are warranted, on the faith of Hiouen-Tsang, in believing ; but, until fresh information emerges, we shall be sufficiently secure in regarding them as a race of provincial rulers, whom, memorable, or immemorable, Indian tradition has long consigned to oblivion.

For amendment of most of the minor errors, not already noticed, into which Professor Lassen has fallen, the reader may turn to the paper which these pages serve to complete. The Eran column is dated on the twelfth† of the month, not on the thirteenth : we owe it to Mātrivishṇu and Dhanyavishṇu, not to the ideal Vaidalavishṇu : Eran is not in Málava, and probably never was ; nor is it near Saugor, but about fifty miles distant, on the river Vená, now Bíná. In all these instances, it is just to observe, the Professor was misled by Mr. Prinsep.

But, parenthetically, the writer would earnestly deprecate the result, from the strictures here recorded, of a sweeping undervaluation of the volumes in which he has here and there espied a blemish. A most favourable judgment has been passed, by Professor Max Müller, on the *Indische Alterthumskunde*, of which he says : “ Professor Lassen, in his work on Indian Antiquities, now in course of publication, is giving a resumé of the combined labours of Indian philo-

\* Hiouen-Tsang first specifies five kings, of whom the second is Buddha-gupta. After a lapse of some time was a sixth, who built a monastery, which, with five others, he combined into a grand whole. Of this establishment the pilgrim says : “ Depuis sept cents ans que ce couvent existe, nul homme n’a jamais enfreint les règles de la discipline.” *Voyages des Pèlerins Bouddhistes*, Vol. I., pp. 150—152. But there is nothing of this duration in Vol. III., where one would naturally look for additions.

Now, Hiouen-Tsang was in India from A. D. 629 to 645. To reach Buddha-gupta we are, then, to recede seven centuries and at least four generations.

A short distance after the extract just quoted, at p. 154, is an interesting passage about an attempt made by one S’rígupta on the life of Buddha or S’ákya-muni. Also see Vol. III., p. 18.

† Mr. Prinsep has “ thirteenth” in his translation, and “ fourteenth” in his summary of it.

logists during the last seventy years, sifted critically and arranged scientifically by a man of the most extensive learning, and of the soundest principles of criticism. His work may, indeed, be considered as bringing to its conclusion an important period of Sanskrit philology, which had taken its beginning with Sir W. Jones's translation of *S'ákuntala*.\* Elsewhere, however, the same admirable scholar punishes, with a severity only too suitable to their deserts, certain unnamed projectors who have schemed about the things of this country. His words are: "Not only have general conclusions been drawn from the most scanty materials; but the most questionable and spurious authorities have been employed without the least historical investigation, or the exercise of that critical sifting which, from its peculiar character, Indian literature requires more than any other."†

Unsatisfactory indeed is it, after so much destructive criticism, to have little of instantly helpful truth to substitute in the room of what has been swept away. I have previously cast in my mite, in solving the real age of Budhagupta; and, on twofold grounds, it is no longer defensible to postpone him, as in the theories of Mr. Thomas and Colonel Cunningham, to Skandagupta, with whom, to all appearance, the glory of the Guptas set for ever. Still, it would be unadvised to innovate to the length of banishing him from that family; and, not thus innovating, if we would assign him a place, we are driven, for the present, to conjecture. That, at one period, there were two sets of Guptas ruling simultaneously, may prove, by and bye, to be a not unreasonable suggestion. At all events, nothing hitherto made public is irreconcilable with it. Budhagupta, by possibility, may have been the first sovereign of a tentative independent branch which almost certainly ended with himself; for Toramána, his proximate, if not immediate, successor, was not a Gupta, and very likely was a usurper.‡

\* *History of Ancient Sanskrit Literature*, &c., pp. 2, 3, foot-note.

† *Ibid*, p. 6.

‡ See what has been cited from Colonel Cunningham, in another note, on the ancestry of a Toramána.

If there was a Mahendragupta, not identifiable with Kumáragupta, who knows but he was of the hypothetical gentile offshoot to which I propose to refer Budhagupta?

A few words on the vexed subject of the Gupta era will conclude all that I now have to offer. According to Albirúni, it was computed from the extermination of the Guptas; and he synchronizes it with the era of Balabhi. We are left, then, to infer that the denomination of the latter era was designed to recal to remembrance the event of Balabhi's accession; and the foundation of one dynasty must be taken to have ensued at once on the extinction of the other. Such is the legitimate inference to which the language of Albirúni compels us. In speaking of the succession of Balabhi to the Guptas, he only says, however, that, apparently, he came just after them; and the implied confession of incertitude may well awaken doubt. M. Reinaud's first version of the passage from Albirúni is here accepted in preference to his second, in which, most paradoxically, he represents Balabhi to have been the last of the Guptas.\*

Not a single inscription, containing a full and intelligible date, professedly to be reckoned in the Gupta era, has as yet been published. Is it impossible that it was chronologically distinct from the Balabhi era? Some years ago, while journeying through the valley of the Nerbudda, I came upon two inscriptions,† of which the time, all but the era, is specified with as much completeness as could be desired. From their object-matter it was evident that they were dated neither from the epoch of Vikramáditya, nor from that of S'áliváhana. At my request, my accurate and obliging friend, Pandit Bápú Deva S'ástrin, whose valuable aid I have before acknowledged, undertook to ascertain from what era their dates could be counted; whether from A. D. 319,‡ or from within a latitude of fifty years an-

\* For the two versions, see Mr. Thomas's edition of Mr. J. Prinsep's *Essays on Indian Antiquities*, Vol. I., pp. 269 and 271.

† I have translated and disserted on them in the *Journal of the American Oriental Society*, Vol. VI., pp. 499—536.

‡ It was first made known by Colonel Tod that the Balabhi era then began. See his *Annals of Rajasthan*, Vol. I., p. 801.

My paper on the land-grants of Hastin, and that on the Eran inscriptions, as I did not see the proof-sheets, abound in errors of the press, to say nothing of other faults. The more important will here be rectified, and a few comments interspersed. For safety, I romanize.

Page 2, foot-notes, line 1. Read *shashottare*: l. 16, *bṛi*: l. 20, *shṭa*, 856 and 863.



terior. The result—and nothing in the inscriptions conflicts with it—is A. D. 278. May it not be, I would ask, that we have, in that year, the starting-point of the era of the Guptas? It would not surprise me to learn eventually that others shall have seen cause to answer this question, propounded in a more positive form, in the affirmative.

*Saugor, April 30, 1861.*

Page 3, foot-notes, l. 2. Erase the two *anuswáras* : l. 30, read *bhukta*.

Page 4, foot-notes, l. 3. Read *bhukti* : l. 37, *varshe*.

Page 6, l. 7. Read *naika*—, and cancel part of the foot-note.

Page 7, l. 1. Read *gartáh* : l. 12, *áchchhettá* : foot-notes, l. 11, *bhukte*.

Page 8, l. 1. Read 'sprung from the house of King Parivrájaka,' as more probably correct.

Page 10, foot-notes, l. 9. Read *parichchheda*, and add *atisrishṭa*, *avadhyána*, and *áchchhetri*.

Page 11, l. 10. Read—*grámakasya*.

Page 12, foot notes, l. 2. In my MS. were *putrena* and *suryadatena*. I was pointing out blunders.

Page 13, foot notes, l. 2. Read *parichchheda*. L. 8. Supply 8 in the Sanskrit.

Page 16, foot-notes, l. 7. The inscriptions are right in having *purogábhyaḥ*; and I should have translated their common valediction as follows: 'May happiness attend all the subjects, *to-wit*, the kine, the Bráhmans, and so forth.'

Page 17, l. 2. Read *s'anka*.

Page 18, l. 2. It ought to have been remarked, that what I read as *sansurabhu* is doubtful in its penultimate syllable, and very doubtful in its final. If right, render 'in which is the good land of the gods.' In the inscription, the adjacent word *kálinḍi* is quite clear. See the Journal of the Royal Asiatic Society, Vol. XII., p. 71, foot-note.

Page 18, l. 3. *Suras'michandre*, being followed by a *cha*, appears very like the name of a man. Formerly I read *mahárudra*—, but by supplying *dra* conjecturally. To *r* the stroke which sometimes expresses *u* is, however, often affixed gratuitously. If we read *mahárája*—, the sense will be 'and when Suras'michandra possessed, throughout the world, the lustre of a great king.' He may have been only a local magnate.

Page 18, foot-notes, l. 10. Read 'Suráshṭra.'

Page 21, foot-notes, l. 1. Read *tenaiva (sa) há'vibhakta-punya-kriyena*, 'whose righteous deeds are not dissociated from his.' The metaphor is legal. Dhanya-vishṇu goes on contributing his good works to the fund which he and Mátri-vishṇu once accumulated as partners.

Page 22, l. 4. Read 'the supreme refuge of the world.'





*Gyges' ring in Plato and Nizámí.*—By E. B. COWELL, M. A.

There is a well known legend in the second book of Plato's Republic, which Glaucon relates to support his hypothesis, that injustice would be superior to justice, if the perpetrator could be always sure of impunity,—we refer to the curious story of Gyges and his ring. Herodotus in his history of the rise of the Lydian dynasty of the Mermnadæ follows a very different account, both being probably merely popular legends, such as so constantly spring up in an unhistorical age, to supply a plausible explanation of past events, the true character of which has been unobserved or forgotten. Different ancient authors follow one or the other account as best may suit their purpose, but the many subsequent repetitions of Gyges' history are no doubt all to be traced to the two original sources as we find them in Herodotus and Plato; and the proverbial "Gyges' ring" plainly proves which of the two versions laid the deeper hold on the popular imagination.

In the second part of Nizámí's *Sikandar-námah*\* (frequently called the *Sikandar Námah-i Bahrí*), there occurs a curious account of a council held in the court of the young Sikandar by the principal philosophers of Greece, where time and space are set at nought as triumphantly as by Goethe's Faust, when he marries Trojan Helen—Hermes, Plato, Socrates, Aristotle and Porphyry,† being all represented as fellow citizens and contemporaries. Each tells his tale or gives his moral advice, but, except in the case of Plato, we find nothing personally appropriate in the speeches attributed. It might indeed be an interesting question, how far the orientals have any real knowledge of Greek philosophers beside Plato and Aristotle,—for certainly although they often quote Pythagoras and others, the quotations are generally mere commonplace moralities which are only fathered on venerable names to secure to them a spurious weight

\* Pp. 55-58, in Dr. Sprenger's edition in the Bibliotheca Indica.

† The other two who make up the 'seven sages,' are Wálís (واليس) (Thales?) and Balínás (بليناس). There are some interesting remarks on the latter name (also written فليذوس) in Sir W. Ouseley's *Travels*, Vol. I. p. 62. De Sacy identifies him with Apollonius of Tyana. Jámí in his *Khíradnámah* adds instead Pythagoras and Galen to the five mentioned in the text.

from the pretended authority under which they come.\* In Nizámí, it is only in Plato's discourse that we find anything like personal identity—and it is singular that he is represented as telling this very legend of Gyges and his ring, and that in such a detailed manner that it can be nothing but a direct translation from the Republic itself.

To prove this identity of the two accounts, we subjoin a literal translation of each.

The Persian episode commences with an account of a dispute for supremacy between Plato and Aristotle, which is at length settled by the former inventing a peculiar kind of musical instrument, which the latter is completely baffled to explain.

When the next day the world-illumining morning  
Triumphantly turned night to day,  
The rose of the sun's flaming fountain burst forth,  
And night plunged into the sea like a fish.  
The crown-bearing king sat on a throne of gold,  
With a jewel-laden girdle round his waist,  
All the wise men sat beneath the throne,  
And Aflátún's seat was higher than all.  
The king, since the sage had learned that magic strain,  
Wondered more and more how he had learned it ;  
And he asked him, " Oh thou world-experienced old man,  
Who hast brought from thy soul secrets of the unseen world,  
The key to the lock of knowledge thou,  
Knowledge comes forth from thy counsel.  
Say, hast thou read, of all the wise of earth  
Has there ever been one whose hand reached higher than thine ?  
Has any invention ever risen from this workshop,  
To which thy genius could not find the way ?"  
Aflátún first uttered the full voice of praise,  
And then said, " Yonder turquoise circle  
Can weave in better wise its enchantments  
Than that human wit can detect the way thereto.

\* Even the so-called extracts from Plato in the *Akhláki Jaláli* are only commonplace moral observations, with no trace of anything Platonic to characterize them.

Of all the achievements of those of ancient time,  
Of all that they did in magic and illusion,  
I will tell thee one,—but one of an hundred such,  
None in this world knows this secret of the Master.  
If the king command me, I will tell a little thereof,  
Not one of ten, but one of an hundred.”

Permission was granted by that lord of just rulers,  
That the sage should declare the history.  
Then the world-experienced sage, enlightened of heart,  
Thus uttered the tale, ‘ Oh thou monarch of happy throne,  
Of the days and revolutions of ancient time  
I have heard this memorial from my teacher.  
I have heard, that once a hot vapour came rushing on  
And split the ground with a sudden rent,  
And the plain threw up the dried earth from the chasm,  
And a talisman came to light from under the ground,  
A molten image of tin and copper,  
A statue cast in the likeness of a horse ;  
And in the side of the lofty steed was seen  
An opening like the bed of a water channel.  
When the sun shone into that hole,  
A hidden picture flashed forth to view.  
A shepherd by chance passed by that deep ravine,  
He beheld an empty chasm in the bare plain,  
And when he entered into that ravine’s depth,  
Lo he saw in it a gleaming talisman,  
A copper steed, and in the body  
A huge fissure proportioned to the statue.  
He looked in the hole by the light of the sun  
And it stretched from the horse’s head to its haunch ;  
And he saw an old man asleep therein,  
Not one of his gray hairs moved from its place,  
And in his hand a ring of gold  
With a signet shining like the planet Jupiter.  
Towards it he hastily stretched his hand  
And he drew the ring from off the finger,  
And when he saw the ring in his grasp,  
He placed it at once on his own finger.

No other royal treasure found he there,  
The statue let him depart, and he hastened from the place.  
He led his flock and he gladly went his way  
Waiting patient till morning came.  
When from the banner of the azure sky  
The sun lifted his blazing ball,  
The shepherd went to his master,  
The flock left scattered on mountain and plain,  
That he might place that ring before him  
And learn its value, great or small.  
When the master beheld the shepherd come  
He opened his speech with words of kind greeting.  
He asked of him the state of sheep and lambs,  
And the other listened and gave him a true reply.  
But lo! in the midst of this question and answer  
The shepherd from time to time vanished from sight,  
And from time to time he re-appeared,  
And at last the master of the flock exclaimed,  
"Why dost thou continually become invisible,  
And again as suddenly come forth to light?  
Tell me what spell hast thou learned  
That thou hast woven such a subtil veil to hide thee?"  
The shepherd stood astonished at the charge,  
And he sought help in his trouble from his motherwit,  
And lo the truth was this,—the ring-worshipping swain  
Had played with the ring on his hand, as he talked,  
Sometimes quickly and sometimes slowly,  
Now he placed it up and now down;  
And when the seal was above on his finger  
The shepherd was visible to the by-stander,  
But when it was turned to the palm of his hand  
The shepherd was at once hidden from his sight.  
The shepherd when he learned this secret  
Turned his face towards the mountain and desert,  
And when he came to play his magic tricks,  
Playing with his ring as the rolling heavens,  
Wheresoever he wished to remain concealed,  
There he kept the signet close in his palm,

But where he wished to appear before men,  
There he placed the seal in its proper place.  
He wandered through the city, now seen, now concealed,  
And he gained all that his heart desired.  
And one day he rose in secret,  
He turned the signet downward to his palm,  
With a naked Indian sword in his hand,  
He went to the palace and sat him down in secret,  
And when the council chamber was empty of the nobles,  
He suddenly revealed himself to the king.  
Fear seized the heart of the king when he saw him,  
And he hastened to submit himself to his will.  
“Take heed,” he cried, “what is thy desire,  
And who sent thee into this place?”  
The shepherd answered, “I am a prophet,  
Commit thyself to me and be content with thy fortune.  
When I will that none should see me,  
This miracle is at once at my command.”  
The king in fear believed his words  
And the people of the city beyond all number;  
And the shepherd grew so great and exalted  
That at length the kingdom passed into his hand.”

Aflátún concludes his story with some commonplace remarks on the inscrutable wisdom of the architect, who could contrive such a wonderful piece of workmanship,—but we will rather turn to the real Plato, and hear his version of the legend.

“They say that Gyges, the ancestor of the Lydian Cræsus, was once a shepherd in the employ of the then king of Lydia, and that one day there was a great shower and earthquake and a part of the ground was rent open and a great chasm appeared in the place where he tended his flock. He was on the spot and saw it, and being much astonished went down into the ravine, and there he saw many other marvels such as storytellers romance about, and among others a hollow horse of brass, having windows in it, through which he peeped, and lo! inside was a dead man, taller as it seemed than human size. The body had nothing remarkable except a golden ring on its hand, which he took off and then went out. It chanced that the shepherds met together as they were wont to do, that they

might send monthly tidings of the flocks to the king, and he too came with the rest, wearing his ring. As he was sitting with the others, he happened to turn the bezel\* of the ring inside towards the palm of his hand, when he immediately became invisible to those who sat near, and they began to talk of him as gone away. He of course wondered at this, and began again to twist the ring and turn the bezel outwards, and when he turned it, he became visible. Having observed this incident, he made experiments with the ring whether it really had this power, and he found it always happen so, —if he turned the bezel inwards, he became invisible, but he was visible again, if he turned it outwards. Having made this discovery, he next contrived to become one of the messengers to the king. On his arrival, he corrupted the queen, and plotting with her attacked the king and killed him and seized his throne."

There can be no doubt that Nizámi derived his story from the Republic,—the only question is, by what channel did it come to him? It is well known that Honain and his sons (towards the end of the ninth century) were the chief translators of Greek authors into Arabic. Dr. Schmölders says,† "On trouve cités assez frequemment dans les auteurs arabes plusieurs dialogues de Platon, notamment le *Cratyle* et le *Phædon*, mais aucun de ces livres n'est mieux connu d'eux que son grand ouvrage sur *les lois*." Some of Honain's translations seem still extant, and Casiri in his *Bibliotheca Arabico-Hispanica* quotes from an Arabic author a list of the translations of Honain and Jahia ben Adi, and among them is "*Politicorum Liber ab Honaino Isaaci filio Arabicè conversus*" (vol. I. p. 302).

In this way Nizámi most probably gained his knowledge of Gyges, and he has appropriately put the fable into Plato's own mouth. If, however, he had really read the Republic even in the baldest translation, he is inexcusable for not having attempted some faint approach to dramatic propriety when he introduced Socrates also into the assembly. The character, whose 'photograph' has been preserved to us with such marvellous distinctness in the page of Plato, retains not even an outline resemblance in that of Nizámi, and one can hardly believe that the Persian poet ever read more than the second

\* Σφενδάβη, Cicero (De Off. iii.) translates it 'pala annuli.'

† Essai sur les écoles philosophiques chez les Arabes, p. 93.



book of the Republic, as he certainly has utterly failed to reproduce a single feature of the central figure of the piece.\*

NOTICES OF NEW WORKS RELATING TO SANSKRIT LITERATURE.

*Les Avadanas ou Contes et Apologues Indiens inconnus jusqu' à ce jour suivis de fables et de poesies Chinoises, traduction de M. Stanislas Julien, 3 vols. Paris, 1860.*

M. Julien has given us a collection of 112 Indian Apologues, from various Chinese Buddhist works. They profess to be originally derived from Sanskrit authors, and in fact many of the stories in their scenery and proper names evidently betray their Indian origin. It is, however, not a little remarkable that nearly all these stories seem at present unknown to us in the extant Sanskrit literature.

We have been able to recognize very few among the one hundred and twelve as old acquaintances. Thus the 5th story of the enmity between the crows and the owls seems taken from the 3rd book of the Panchatantra, and the 14th gives us the well known story of the geese flying up with their friend the tortoise, which is found in the Hitopadésa.† In the 74th we have the Vrihat Kathá legend of the founding of Pátalíputra and the magic coffer, stick, and shoes; and the 91st gives us the well known ass in the lion's skin.

It is somewhat singular that Nos. 32 and 53 give us two versions of an allegory of human life, which we have never seen in any Sanskrit author, but which is found in several Persian poets, especially Jaláluddín,‡—we refer to the apologue of the man leaping into the well to escape a mad elephant and clinging to a plant which grew on the side, when he suddenly perceives that its roots are being gnawed by two rats, one white and the other black, representing our

\* I may add that in a former chapter of the Sikandar-námah (p. 25) Nizámí tells the classic story of Midas' ears and the reeds,—only it is absurdly attributed to Sikandar, as one of the various ways of accounting for his title *zú l karnain*.

† Jámí treats it very poetically in his *Tuhfat ul Ahrár*; his lines might half remind us of Will Waterproof's cock and the head waiter,

—He by farmstead, thorp and spire  
And followed with acclains,  
A sign to many a staring shire,  
Came crowing over Thames.

‡ See von Hammer's *Schönen Redekunste Persiens*, p. 183.

life gradually consumed by day and night. In the 8th we have the Persian story of the company of blind men, each of whom feels one part of an elephant, and their different inferences of the whole animal when they all compare notes together.

Some of these stories are only expansions of a proverb, thus the 69th only embodies in a narrative the common enough idea which Catullus has made proverbial,

In vento et rapidâ scribere oportet aquâ.

Surely none but a Chinese would ever have wanted a definite instance of such penmanship before he accepted the truth of the aphorism!\*

As a specimen of the stories, we subjoin the ninety-seventh,—though we cannot help fancying that we have seen it before in some other guise. We are informed that it is not unknown in Bengal to the present day.

“Once on a time in the kingdom of Gândhâra, there was a company of comedians, who, in an hour of distress, went to seek their fortune in another country and crossed the mountain of Balaséna. Now that mountain had always been famed as the haunt of cruel demous who devoured travellers. Our poor comedians had to pass the night on its summit. As an icy wind swept across the mountain, they lit a fire and lay down to sleep. Among the players was one who suffered much from the cold, and to warm himself he put on the dress of his part, which was that of a Rákshasa. He approached the fire and sat down. It happened at the moment that some of his companions awoke and seeing a Rákshasa near the fire, without a moment’s further examination, they at once took to their heels and fled. The movement soon spread to the others, and the whole company was off in a moment! The one in the Rákshasa costume, not liking to be left alone, followed them with the utmost rapidity. The others, seeing him so close behind, imagined that he was coming to devour them, and in their terror they scaled a mountain and crossed a river and plunged into the bogs. Their bodies were flayed, their limbs were bruised, and they sank down at last exhausted with fatigue. At length morning came and lo! it was no Rákshasa at all!”

E. B. C.

\* The Chinese story literally carries out Æschylus’ idea, κατ’ ἴχνος πλατῶν ἀφαντον (Ægam. 696.)

PROCEEDINGS  
OF THE  
ASIATIC SOCIETY OF BENGAL,  
FOR MARCH, 1861.

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The monthly general meeting of the Asiatic Society was held on the 6th instant—

A. Grote, Esq., President, in the chair.

The proceedings of the last meeting were read and confirmed.

Presentations were received:—

1. From Captain J. C. Harris, two ancient copper coins supposed to be Bactrian, found near Tankpanee in the Pooree district.

2. From J. Avdall, Esq., a copy of a work entitled “Selections from the Dewan of the Great Mystic Poet of Persia, Jelaluddin Rumi.”

3. From the president, A. Grote, Esq., various specimens, including a fine example of the long-tailed Lizard (*Tachydromus 6-lineatus*), a Snake, &c. &c.

4. From W. H. Foston, Esq., Penang, through Captain F. Laycock, of the surveying brig *Krishna*, a young Crocodile, in spirit,—also, from Captain Laycock, an example of *Scolopendra morsitans*, taken on board his vessel.

5. From the Barrackpore Park menagerie, a dead Sáras (*Grus antigone*).

6. From Babu Rajendra Mállika, various dead animals, including a small Orang-utan, the Sáras and Common Cranes, Indian Pelican, and an unimpregnated egg of the Long-billed Cockatoo (*Nimctis nasicus*.)

7. From S. J. Paynton, Esq., a freshly killed *Felis celidogaster*.

8. From Babu Gourdooss Bysack, a Snake (*Bungarus annularis*).

The following gentlemen duly proposed at the last meeting, were balloted for, and elected ordinary members:—

N. T. Davey, Esq.; Hon'ble Samuel Laing; C. Boulnois, Esq.; Charles Barnes, Esq.; Hon'ble H. B. Devereux; J. J. Gray, Esq., (re-elected.)

The following gentlemen were named for ballot at the next meeting:—

Rev. T. H. Burn, proposed by Rev. F. F. Mazzuchelli, and seconded by Mr. Cowell.

Major P. S. Lumsden, Assistant Quarter Master General of the Army, proposed by Major Thuillier, and seconded by Colonel Sir A. S. Waugh.

#### REPORT FROM THE COUNCIL.

The Council beg to recommend that the following works be published in the New Series of the *Bib. Indica*.

1. Pandit Moheschandra Nyáyaratna proposes to edit from three MSS., an edition of the *S'ankara Dig Vijaya* by Mádhava Áchárya. This work is one of the authorities for a little known but deeply interesting period in Hindu history. We have already printed\* Mádhava

\* Some doubts have been expressed as to the identity of the Mádhava, the author of the *S'ankara-dig-vijaya*, with the celebrated vaidic and philosophic scholiast of the 14th century. The style is undoubtedly different to that of Mádhaváchárya's other works, but the following facts seem to establish the identity of the two authors.

1. In the opening line of the *Digvijaya*, the author addresses the supreme Being, whom he identifies with his guru *Vidyátirtha*,

प्रणम्य परमात्मानं श्रीविद्यातीर्थरूपिणं ।

प्राचीनशङ्करजये सारः सङ्गृह्यते स्फुटं ॥

This couplet throws light upon the opening lines of Mádhaváchárya's commentary on the *Rig* and *Taittiríya Sanhitás*.

यस्य निःश्वसितं वेदा यो वेदेभ्योऽखिलं जगत् ।

निर्ममे तमहं वन्दे विद्यातीर्थमहेश्वरं ॥

(Mádhava-Sáyana seems to have had many gurus, as his *Sarva-dars'ana sangraha* is dedicated to *Tishnu Sarvajna*, while in the *Panchadas'í* he calls his guru *S'ankaránanda*. *Vidyátirtha*, however, is mentioned in the *Nyáya-mála-vistara*).

2. There is in the library of the *Sehore School* a copy of a commentary on the *Mádhavíya Digvijaya*, written by one *Dhanapati Mis'ra*, in the *samvat* year 1855. By the kindness of F. E. Hall, Esq. we have received a copy of the opening pages. The following is the beginning of his commentary on the first words quoted above, where he expressly attributes the work to Mádhaváchárya.

Acharya's *Sarva Dars'ana Sangraha*, and the present work, which would fill about three Fasc., would be a valuable supplement for the history of Hindu philosophy. It will be edited under the superintendence of Pandit Jaya Náráyana Tarkapanchánana, Professor of Philosophy in the Sanserit College of Calcutta.

2. Pandit Premchandra, the Rhetoric Professor of the Sanserit College, proposes to edit the *Kávyádars'a* of S'rí Dandí, the oldest Rhetorical work of the Hindus. It would only fill an ordinary number or so. A few extracts from one of the Native commentaries would be added.

3. Mr. Cowell has prepared an edition of the rare and ancient *Kaushítaki Upanishad* with S'ankaránanda's commentary. The scholars of Germany have repeatedly asked for an edition of this work, as there is no complete MS. of it in Europe. Four MSS. at least have been available for this edition, which, with a translation, will occupy about two Fasciculi.

4. The *Nakibat ul Fikr* to be edited by Captain Lees. This work, which will fill one Fasc., was originally accepted by the Society in 1855, and the Council recommend that it be now published in the old series as a work already commenced, and therefore fairly falling within the terms of the letter of the late Court of Directors.

The recommendations were adopted.

Communications were received:—

1. From Mr. H. B. Medlicott through Professor T. Oldham, a paper "On the Sub-Himalayan rocks between the Ganges and the Jumna."

2. From Lieutenant-Colonel H. Bruce, the following note concerning the oscillation of the water in a tank at Ballygunge:—

निखिलानर्थपूर्वकपरमानन्दाविर्भावलक्षणपरमपुरुषार्थानन्यसाध-  
नाद् द्वैतज्ञानविजयपर्यवसन्नं श्रीमच्छङ्कराचार्यविजयमाविष्कृतं  
ग्रन्थमारभमाणः श्रीमन्माधवाचार्यस्तस्य निर्विघ्नपरिसमाप्त्यादिसिद्ध-  
येऽविगीतशिष्टाचारानुमितिश्रुतिप्रमितिकर्तव्यताकं विषयप्रयोजनसू-  
चकं मङ्गलमाचरन् चिकीर्षितं प्रतिजानीते ।

Dr. Aufrecht writes from Europe, "I am glad that you purpose to print the *Mádhaviya Digvijaya* in the *Bibliotheca*, as it contains some very fine legends and a number of genuine poetical passages."—EDS.



“ On Saturday evening, 16th February, 1861, Pakhoo Syce, in the service of Alexander Walker, Esq., went to a tank in the compound to wash his face. He observed the water receding from the masonry steps of the tank, and upon watching it for a few seconds perceived it to rise again until it stood above his ankles. He then ran and gave information to the other servants.

“ We proceeded to the spot at about 7½ p. m., and observed the water as described by the syce. It rose and fell at least six inches at intervals of from 23 to 30 seconds.

“ We then took observations from the other end of the tank in order to ascertain whether the whole body of water rose and fell, or whether it was surging backwards and forwards. There was neither wave nor ripple on the surface.

“ The result of the observation was that when the water stood highest at one end, it was lowest at the other end, and the oscillation was to and fro from East to West.

“ It was remarked by the natives that the water was at a higher temperature than usual, but no thermometer being procurable, we were unable to determine this point.

“ Persons were then sent to all the neighbouring tanks to ascertain if they were perturbed also, but the water in them was quite stationary; the night was still.

“ When the oscillation was at its greatest, the water must have risen and fallen at least 8 inches; that is, if we may judge from the marks on the parapet wall of the masonry steps; but when we measured it at ½-past 7 o'clock it appeared to be rather over than under 6 inches, and it went on gradually diminishing until at about 11 o'clock p. m. there was a rise and fall of only about one inch.

“ We observed that the fish in the tank jumped a good deal, and the little crabs came to the edges as if endeavouring to get out.”

The Secretary stated that he had received another communication from Mr. Masters of the College at Krishnagur, giving an account of a similar disturbance having occurred at the same time in some of the tanks in that neighbourhood.

The following extracts from Mr. Masters' letter were read:—

“ I see that the papers have begun to notice a very remarkable phenomenon in the rivers and tanks, which occurred on Saturday the 16th ultimo, at 7 p. m., and have called upon the Asiatic Society to take it into consideration.

“The phenomenon in question was brought to my notice on Monday morning, the 18th ultimo, by some of the students in the highest class of the Krishnagur College, who sought for an explanation.

“They stated that at 7 P. M. nearly, of the 16th ultimo, a report reached them that the large tank adjoining the Rajbarry (as large as Tank Square in Caleutta) was extraordinarily agitated. The horns were sounded as is usual on very extraordinary occurrences, and they ran to the spot to witness the “troubled waters,” and five or six declared that they were eye-witnesses of the fact. They observed the water rise about a foot above its level and then recede, that it did not rise and fall vertically, but when it rose one foot on one side of the tank it left bare a foot on the opposite side and *vice versa*; that these two sides lay nearly East and West and that mid-way of the other two sides, there was a line running North and South where the water maintained a constant level—an axis of oscillation:—so much detail was elicited by question and answer with the first student of the class, who said that he was curious to know whether there was any difference on opposite sides, and he stationed one on one side while he went on the other and agreed with him upon certain signals: that the oscillation appeared to be about once in four or five seconds, and that this agitation went on lessening for the quarter of an hour that he was there, after which it ceased.

“First there was an impression in my mind that some large animal, an elephant, might have been bathing and plunging on the opposite side, no compliment to my friend’s powers of observation! but no elephant was seen; next, that it might have been an alligator, or it might have been a sudden flow of water into the river which communicating with the tank by a direct channel, caused a rise and fall: if the communication were by percolation through the strata, the oscillation would be vertical and very slow.

“A day or two after, I learnt that a similar phenomenon was witnessed at the following places on the same day and at the same hour very nearly.

“At Madhubpur, about 8 miles N. E. from Krishnagur, in a *jheel*, where at one time the river ran; here the water rose in waves.

“At Nuddea, where a man taking water from the river felt the water suddenly rise above his feet and wet his clothes, and where an unusually high ‘tide’ was observed by the boatmen.

“ At Panch Beyria near Cutwa, in a tank about three miles from the river.

“ At Oolooah, 12 miles S. E. from Krishnagur, towards Ránághát.

“ The water of the Jellinghee off Krishnagur was also disturbed.

“ Uniting these notices with those sent to the *Hurkaru* from Balasore, Beerbhoom and the Goorai river, I of course dismiss the elephant and alligator, as free of all blame.

“ An earthquake appears to be the only efficient cause, but it is strange that, although the phenomenon of ‘troubled waters’ is noised abroad, no one has given notice of an earthquake.”

The Ven’ble Archdeacon Pratt remarked that there could be no doubt that the disturbance was caused by a slight earthquake, and in this view the members present concurred.

3. From Captain T. G. Montgomerie, Bengal Engineers, through Major H. L. Thuillier, a paper “ On the extension of Survey operations in Kashmir, Ladak, &c. and the conquest of Gilgit.”

Captain Montgomerie made some observations with reference to his map of the Jamoo territories, and chart of the Kashmir Series Triangulation.

He remarked that the map reduced from the original to a scale of  $\frac{1}{4}$  inch to the mile, represents an area of about 24,000 square miles, and being on this reduced scale, it shows, at a glance, the position of Kashmir, with reference to the surrounding mountains. The country represented embraces all the territories of the Jamoo, or Kashmir Maharaja that lie on the Hindustan side of the great Himalayan range; that is, from the Ravee to the Jhelum, and from the plains of the Punjab to the glaciers of the Nanga Parbat, 26,630 feet above the sea.

The Chart, on the same scale, shows that the triangulation covers no less than 56,000 square miles, or an area greater than that of England.

A general description of the geographical features of the valley was then given, dwelling upon the advantages its scenery derives, from the number and variety of lakes and tarns, which are wanting in almost all other parts of the Himalayas.

An examination of the map shewed the great number and gigantic size of the glaciers now existing in that part of the Himalayas, and the traces of ancient glaciers prove that they must then have formerly

been from 20 to 30 miles in length. Their present size, so much exceeding those that have been found in more easterly parts of the Himalayas, is no doubt due, in some measure, to the increase of latitude, as well as to the great height of the peaks, which are absolutely higher than any others west of Nipal.

Captain Montgomerie pointed out that the highest peaks had generally been found on the spurs, at some distance from the watershed lines.

After a description of the rope-bridges used in the country, he explained that the heights of the Kashmir series depended upon those of the N. W. Himalaya series, and those heights had been tested by trigonometrical levelling, carried round Colonel Waugh's great geodetical quadrilateral, viz., from Kurrachee to Sirouj, Sirouj to Dehra Dhoon, thence to Attock, and back again to the original starting point. This circuit of no less than 2,500 miles, closed with a discrepancy of only  $\frac{3}{4}$  of a foot by one set of levels, and of  $1\frac{1}{2}$  feet by another.

The Kashmir series consequently may be said to have started, with as accurate heights as nature would admit. The heights of the series itself have been tested in a similar way, the effects of attraction are known to be cancelled, in some measure, in the Kashmir series, as Captain Montgomerie's latitude observations shew that there is in the mountains a strong Southerly as well as Northerly attraction.

Every care has been taken to diminish the uncertainties of the refraction, which, in the lower hills, was about 1-16th, and in the higher ground, as little as 1-25th, of the contained arc.

Sir Andrew Waugh's system of trigonometrical levelling was explained, the main features being the taking of vertical observations at the time of minimum refraction, between 2 to 3 P. M., repetitions of observations on different days, and strict adherence to the same apparent time for reciprocal observations. This system makes the trigonometrical levelling a rival to the spirit levelling, more especially in hilly ground.

For instance, the trigonometrical levelling from Kurrachee made a point near Attock 1014 feet 6 inches, and the spirit levelling made the same 1012 feet 3 inches, being a difference of little over 2 feet in 830 miles. The spirit levelling was carried out with the best modern instruments of the largest size, and with every possible precaution to

ensure accuracy. The trigonometrical levelling, had moreover, had its own tests, and had stood them well, after traversing unprecedentedly great distances; thus, starting from the sea at Calcutta, the trigonometrical levelling closed at Bombay, with a discrepancy of only  $6\frac{3}{4}$  feet in a circuit of 2127 miles, similarly from Calcutta to Kurrachce, 2082 miles, there was a discrepancy of  $16\frac{1}{2}$  feet.

The result of the comparison of these two systems over such a very long line was highly gratifying, and shewed the great value of the trigonometrical levelling, which, in the infancy of geodesy, was neglected, or at any rate, not made full use of, in Europe and other places.

The Kashmir series observations afforded ample proof of the reliability of the heights of inaccessible peaks, for, many as high as 20,000 feet, which were at first computed as inaccessible points, have subsequently been visited as principal stations, and their new values as accessible stations, have agreed very closely with those determined before the station was visited. No greater difference, in fact, was found than could be easily accounted for, by the difference in depth of the snow at different periods, &c.

A short account was then given of the Kashmir series triangulation, which is connected with the triangulation of India, and has been carried over three snowy ranges, and across the great Himalayan range in two places by stations built on its peaks.

The observations of the principal series were invariably taken to luminous signals, viz., heliotropes and lamps.

Great difficulty was experienced in building the masonry pillars and platforms on the snowy peaks. The highest part of the snow was not always over the highest part of the rock. Several shafts had to be sunk in the snow before the rock could be found; when found, sufficient snow had to be cleared to supply building material for the platform. The snow had to be melted to slake the lime. A description of an encampment on the snow was given, referring to the difficulties necessarily encountered by the Surveyors during a residence of at least three or four days on each peak.

The mountainous nature of the country enabled orders to be transmitted at great distances by means of heliotrope signals.

The reverberatory lamps saved great delay, for if the clouds interfered with the work during the day, they generally fell to a lower



level during the night, and observations could then be taken over the clouds. The views seen from stations above the level of the clouds were at times very startling. The general level of the clouds looking like a vast sea, the higher ranges and peaks standing out from it like peninsulas and islands, and the waves of clouds surging backwards and forwards across the connecting ridges.

In the outer ranges the lightning and electricity generally was very troublesome; a portable lightning conductor had to be carried for the protection of the instrument. Many curious phenomena in connection with the electricity at high elevations were recorded. The effect on a steel-framed umbrella, and other metal articles were more especially peculiar on the frozen snow in a thunder-storm, the metal making an unpleasant loud crackling noise.

Captain Montgomerie then read a portion of a memorandum referring to the progress of the Kashmir series during the last season, which will be printed hereafter in the Society's Journal.

Captain Montgomerie pointed out that Messrs. Johnson and Beverley had observed from points 20,000 feet above the sea, and that a well determined trigonometrical station had been built on a point 21,480 feet above the sea.

During the season a large area had been mapped in Little Thibet, including at least 300 square miles of glaciers. The glaciers of the Mustagh and Karakoram ranges have in fact proved to be even larger than those surveyed near the Himalayan range.

After referring to the late conquest of Gilgit by the Maharaja of Kashmir, and the results likely to ensue therefrom, Captain Montgomerie concluded by saying that if the late war made the Chinese officials civil, the gap between Russia and the triangulation of the Kashmir series, now little over five degrees of latitude (say 350 miles), might be triangulated, and the project of the former Surveyor General, Colonel Everest, might be carried out by measuring the arc between Cape Comorin and Nova Zembla, an arc of nearly 70 degrees of the earth's surface. At any rate, if the Chinese are now more civil than formerly, the Surveyors may hereafter succeed in fixing accurately the geographical position of some of the towns of Central Asia.

The cordial thanks of the meeting were given to Captain Montgomerie for his very interesting observations and also to Sir A. S. Waugh, under whose superintendence the valuable survey maps have been got up.

The officiating Librarian submitted the monthly report for February last.

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**LIBRARY.**

The library has received the following accessions since the meeting in February last.

*Presented.*

Auswahl aus den Diwanen des Mewlana Dschelaleddin Rumis.—BY MR. J. AVDALL.

Magnetical and Meteorological Observations made at the Government Observatory, Bombay, 1859.—BY THE GOVT. OF BOMBAY.

Die Vedischen Nachrichten von den Naxatra, von A. Weber.—BY THE AUTHOR.

Statistical and Geographical Report of the Moorshedabad District.—BY THE BENGAL GOVT.

Papers connected with a Report by Assistant Surgeon J. Lalor on the Hill districts to the south-west of Mehur in Sind.—BY THE DIRECTOR OF PUBLIC INSTRUCTION, BOMBAY.

Memorandum on the District of Bussahir and the pacification of the Disaffected portion of its Inhabitants.—BY THE PUNJAB GOVT.

The Oriental Christian Spectator for January, 1861.—BY THE EDITOR.

Proceedings of the Royal Geographical Society of London, Vol. IV. No. 5.—BY THE SOCIETY.

Proceedings of the Royal Society, Vols. 10 and 11.—BY THE SOCIETY.

Journal Asiatique, Vol. XV. No. 60 and Vol. XVI. Nos. 61, 62.—BY THE ASIATIC SOCIETY OF PARIS.

Calcutta Review for December, 1860.—BY THE EDITORS.

*Exchanged.*

The Athenæum for November and December, 1860.

The Philosophical Magazine, Nos. 135, 136 and 137.

*Purchased.*

The Westminster Review for January, 1861.

Sur les Sources de La Cosmogone De Sanchoniathon, Par M. Le Baron D'Eckstein.

Indische Alterthumskunde von Chr. Lassen, Vierten Bandes.

Revue des Deux Mondes for November 15th, December 1st and 15th, 1860, and January 1st, 1861.

The Literary Gazette, Nos. 125 to 133.

Comptes Rendus, Nos. 19 to 26 of Tome LI.

Journal des Savants for November, 1860.

Conchologia Iconica, by Mr. Lovell Reeve—containing figures and descriptions of Cymbium, Anatina and Melania.

Annales des Sciences Naturelles, Tome XIII.—Zoologie No. 5,—Botanique No. 2.

The Natural History Review for January, 1861.

Revue De Zoologie, Nos. 11 and 12 of 1860.

The Annals and Magazine of Natural History, Vol. 6, No. 36 and Vol. 7, No. 37.

History of Infusoria, by Andrew Pritchard, Esq. M. R. I. 4th edition.

Goldstucker's Mánava Kalpa Sutras.

LALGOPAL DUTT,

*Offg. Assist. Secy. and Librarian.*

FOR APRIL, 1861.

The monthly general meeting of the Asiatic Society of Bengal, was held on the 3rd instant—

A. Grote, Esq., President, in the chair.

The proceedings of the last meeting were read and confirmed.

Presentations were received—

1. From Captain F. P. Layard, 33 coins.

The following is an extract from a letter from Bábu Rájendralál Mitra, to whom the coins had been submitted for examination :—

“The collection includes several specimens that are new to the Society's cabinet. Among them may be reckoned 1 of Ilyias Shah, 1 of Sekandar Shah, 1 of Ghiás-ud-dín, 3 of Ala-uddin Hossein Shah, and 2 of Nasrat Shah of Bengal. With two exceptions, they are in a good state of preservation, and one of them seems to be of an undescribed type. There are, besides these, a Turkish grosh, and a four-anna piece of Juddha Vikrama of Nepal, which deserve mention.

“The following is a list of the coins from Captain Layard.

No. 5. Ilyias Shah of Bengal, A. H. 747-760.

No. 4. Sekandar Shah, son of Ilyias Shah, A. H. 761 to 769.

No. 7. Ghias-ud-dín Azim Shah Bin Sekandar, A. H. 769 to 775.

Nos. 1, 2, and 11. Ala-ud-dín Hossein Shah. (The last No. from a different die) A. H. 904.

Nos. 3 and 12. Nasrat Shah Bin Hossein. (No. 12 very much defaced.)

No. 6. A grosh or piastre of 40 paraahs, of Abdul Hamid Bin Ahmed of Turkey. The weight is 293 grains, which is short of the highest limit of the grosh by 17 grains; A. H. 1198. *Locale* of mintage, Kustuntunia or Constantinople.

Nos. 8, 9, and 10. Rupee of Mohammad Shah of Delhi, A. H. 1152.

No. 13. Shah Alum's gold 2-anna piece.

No. 14. A silver penny of George III., dated 1800.

Nos. 15 and 16, Silver one and two-anna pieces of Shah Alum.

No. 17. A paisa of Mohammad Shah. (From Captain H. Forbes, Bhagulpore).

No. 18. A siki or 4-anna piece of Girvan Juddha Vikrama of Nepal, Samvat, 1721, (never get figured).

No. 19. A Nepal silver one-anna piece (date and name unknown).

Nos. 20 to 24. 3 four-, 1 two-, and 1 one-anna pieces of Shah Alum.

No. 25. Aroet two-anna piece of Shah Alum.

No. 26. Ten cent piece.

Nos. 27 to 33. Modern Indian four, two, and 3 one-anna silver pieces; names undecipherable.

2. From M. Garcin de Tassy, a copy of a pamphlet containing his lecture on the Hindustani language and literature, delivered at the Ecole des Langues Orientales Vivantes, on the opening of the Session of 1861.

3. From the Government of Bengal, a copy of the Report on the Land Revenue Administration of the Lower Provinces for 1859-60.

4. From Doctor E. Röer, a manuscript text and commentary of the Taittiriya Sanhita in the Tailinga character. This is the very valuable MS. which has formed the basis of the edition, which is in progress of publication in the Society's *Bibl. Indica*.

Read a letter from Mr. F. Fisk Williams, announcing his withdrawal from the Society.

The following gentlemen duly proposed at the last meeting, were balloted for, and elected ordinary members.

Rev. T. H. Burn and Major P. S. Lumsden.

The following gentlemen were named for ballot at the next meeting :—

T. Anderson, Esq., M. D., F. L. S., Officiating Superintendent of the Government Botanic Gardens, proposed by Mr. Atkinson, seconded by Dr. Thomson.

Major J. T. Walker, Bombay Engineers, Superintendent of the Great Trigonometrical Survey of India, proposed by Major Thuillier, seconded by Mr. Atkinson.

Captain E. L. Earle, Bengal Artillery, Department Public Works, Kurnal, proposed by Captain Montgomerie, seconded by Major Thuillier.

The Council reported that they had appointed the Hon'ble Mr. Laing and Mr. H. F. Blanford, members of their body, in the room of Dr. T. Thomson and Captain W. N. Lees, and that Mr. Oldham had been made Vice-President in the place of Dr. Thomson. They further announced that Mr. J. Obbard's name had been added to the Sub-Committee for Meteorology and Physical Science.

Communications were received :—

1. From T. Oldham, Esq., a note on an inscription on a stone found at Sahebgunj.

The following is an extract from the note :—

“I send herewith a rubbing copy of an inscription found on a stone dug out of the ruins of the old buildings at Sahebgunj, one of the stations on the East Indian Railway. It is situated to the North of the Rajmahal Hills, on the banks of the Ganges, and a short distance to the East of the well known Teleeagarhi Fort.

“In removing masses of these old ruins for *materiel* for the several buildings, &c., required for the railway, Mr. Anley, the Engineer in charge of the works, was very particular in reserving any which were of interest as being carved or sculptured, and among others the stone from which this rubbing was taken. When I visited the place it was in the compound of his bungalow safely preserved, and by his kind aid, I obtained the copy. This was the only stone among the thousands he had raised on which there was any lettering or inscription whatever.

“I submitted the rubbing to Bábu Rájendralál Mitra, and I quote his opinion :—

“The inscription from Sahebganj is not of much interest. It is inscribed in the Tirhoot character of the 16th century, and records the name of a royal priest—Rája Guru Sri Uttanga Sherh. The



compound consonant nga is doubtful, and the tt peculiar, but the other letters bear a close resemblance to the modern Bengali."

2. From Captain L. Pelly, late Secretary of Legation in Persia, through Sir H. Bartle Frere, a paper containing a narrative of his recent journey from Trebizond to Kurrachee.

Captain Pelly was introduced to the meeting, and gave an interesting account of his journey.

His route after leaving the shores of the Black Sea, lay through Turkish Armenia by Erzeroum and Byazeed, and thence to Khoee, Tabriz and the Koof-lan-koh to Teheran.

Captain Pelly briefly alluded to the fact of a series of earthquakes at Erzeroum in 1859, and mentioned some remarkable caves and inscriptions at Anee. He gave also some statistical information relative to the trade and revenues of the province of Azerbaijan.

From Teheran the route lay along the Southern side of the Elburz range to Meshed; thence through the hill track lying along the Turcoman frontier, to Khaff, and thence across the desert of Ghorian to Herat.

From Herat he moved by Sebzver, and Anardhurra; and thence by the borders of Laush and Seistan to Hurnah, rejoining the main road to Candahar at Shahguz; whence he proceeded along the plain of Buckwah, crossing the Khashrood into Washeer, and thence diverging Northward to the Helmund at Seah Guz.

From this point he again struck into the Candahar road near Ghirishk, and so reached the former town by Kooshkinakoot.

Reference was made to a Hill Fort not before visited by a European, overlooking the plain of Seistan called Sipeh-pot or Killah Roostum; also to three partially submerged towns on the Eastern shore of the lake of Seistan, named severally Nadali, Khér-Kookh, and Goolsepegah.

Captain Pelly alluded also to three tuppahs or islands with the ruins of towns on them situate in the Seistan Lake, and never visited in modern times. The island visited by Captain Conolly is to the South of the Lake, and is called Khoorja. A sketch of Dr. Forbes' murder was given as detailed by the eldest son of the chief who murdered him.

From Candahar the road taken was through the Kuzzuck Pass, across the valley of Pesheen and so to Quetta or Shawlkote. From

this point the route lay near the head of the Bolan Pass to Mustonog; thence to Khelat itself; and so by Bhagwan and Khozdar down Beloochistan to the Indian Ocean where Captain Pelly crossed the frontier into British territory within a few miles of the Port of Kurrachee.

The lecturer bore testimony to the general correctness of General Ferrier's work, and spoke of the admiration evinced by the Afghans at the truthfulness and impartiality of Mr. Kaye's history.

At the close of the lecture, Sir Bartle Frere remarked that this was the first journey made by an English officer across Afghanistan since the period of the war, and that it was remarkable that on this occasion it had been made by an officer unarmed, and riding in his uniform.

A vote of thanks was passed to Captain Pelly for his interesting communication.

The Officiating Librarian submitted his report for March last.

#### LIBRARY.

The following accessions have been made since the last meeting.

#### *Presented.*

Cours D'Hindoustani à l'École impériale et spéciale des Langues Orientales Vivantes.—BY M. GARCIN DE TASSY.

Contributions to a knowledge of the Reptiles of the Himalaya mountains. (From the Proceedings of the Zoological Society of London, February 28th, 1860).—BY MESSRS. SCHLAGINTWEIT.

The Calcutta Literary Gazette for 1833.—BY DR. E. RÖER.

S. Jesu Christi Evangelii Latina Interpretatio, quam ad Græci idiomatis rationem expendebat BEN. ARIAS MONTANOS Hispalensis.—BY THE SAME.

Justini Philosophi and Martyris Apologiæ Duæ et Dialogus cum Tryphone Judæo.—BY THE SAME.

A Manuscript Commentary of the Taittiriya Sanhitâ in the Tailinga character.—BY THE SAME.

Report on the Land Revenue Administration of the Lower Provinces for 1859-60.—BY THE GOVT. OF BENGAL.

Report on the Results of the Administration of the Salt Department during the year 1859-60.—BY THE SAME.

Selections from the Records of the Bengal Government, No. XXXIV.—BY THE SAME.

The Calcutta Christian Observer for February and March, 1861.—BY THE EDITOR.

The Oriental Baptist for Feb. and March, 1861.—BY THE EDITOR.

The Oriental Christian Spectator for February, 1861.—BY THE EDITOR.

Report of Progress on the Lahore and Peshawur Road.—BY THE PAN-  
JAB GOVT.

Müller's History of Ancient Sanskrit Literature.—BY THE GOVT. OF  
BENGAL.

*Purchased.*

A Manuscript Text of the Taittirīya Sanhitā in Devanāgarī character.

The Literary Gazette, Vol. VI. New Series, Nos. 134 to 137.

Journal Des Savants for Dec. 1860 and January, 1861.

Comptes Rendus, Tome 52, Nos. 1 to 5.

The Annals and Magazine of Natural History, Third Series, Vol. 7,  
No. 38.

Annales des Sciences Naturelles, 4 Série, Tome XIII.

LALGOPAL DUTT,

*Offg. Asst. Secy. and Librarian.*

FOR MAY, 1861.

The monthly general Meeting of the Asiatic Society of Bengal was held on the 1st instant.

A. Grote, Esq., President, in the chair.

The proceedings of the last Meeting were read and confirmed.

Presentations were received—

1. From Mr. G. D. Westropp, Rawul Pindee, a figure of a female head sculptured in relief, found on the borders of the Hazara country between the villages, Dheree Shahan and Oosman Khatur.

2. From the Secretary to the Royal Geographical Society, London, the thirtieth Vol. of the Journal of the Society.

3. From Captain T. C. Anderson, several copies of a pamphlet containing "Hints for the formation of a Geographical Garden, &c."

4. From Bábu Rájendralál Mitra a copy of his Bengali work entitled *S'íl'pika Darsana* and another containing life of Sevaji.

5. From J. Muir, Esq., D. C. L., a copy of his work "on the Sanscrit Texts on the origin and history of the people of India," Part III. with a book of Index to Parts I. and II. of that work.

6. From Mr. A. R. Blond, two very large Oyster shells found at a depth of 12 feet in the Drainage works excavations in Chowringhee road.

7. From M. Stanislas Julien a copy of his work entitled “*Méthode pour Déchiffrer et Transcrire Les Noms Sanscrits Dans les Livres Chinois.*”

A letter was read announcing the withdrawal of Lieutenant H. Sconce from the Society.

The following gentlemen duly proposed at the last meeting were balloted for, and elected ordinary members :—

T. Anderson, Esq., M. D., F. L. S.

Major J. T. Walker, Bombay Engineers.

Captain E. L. Earle, Bengal Artillery.

The following gentlemen were named for ballot at the next meeting :—

J. D. Tremlett, Esq. C. S., proposed by Mr. Cowell, seconded by Mr. Atkinson.

Maharájá Mán Singh Báhádur, of Oude, proposed by Mr. Atkinson, seconded by Dr. Fayrer.

His Excellency Sir William Denison, K. C. B., Governor of Madras, proposed by Mr. Atkinson, seconded by the President.

Capt. L. Pelly, Bombay Army, proposed by Sir Bartle Frere, seconded by the President.

Communications were received—

1. From Lieut.-Col. H. Yule, the following note of an account of a printing press discovered in the Fortress of Agra when it surrendered to the British Army under Lord Lake in 1803.

*Calcutta, April 26th, 1861.*

MY DEAR ATKINSON,—Among some old papers, I lately found the note which I copy and enclose, thinking it may be worth printing in the Society's Journal.

I am not aware whether there is any other information existing as to the attempted introduction of printing in India under the great kings of the 17th century.

The original note is in the handwriting of my father, the late Major William Yule of the Bengal Army. He was all his life a devoted student of Persian and Arabic literature, and left a large collection of Eastern MSS. which are now in the British Museum. At the date referred to, (1803) he was Asst. to Col. Scott, the Resident at Lucknow.

The sheet of the Koran to which the note refers is, I regret to say,

no longer attached to it, nor if it existed could it now probably be identified.

Your's sincerely,

(Sd.) H. YULE.

“The accompanying sheet containing six pages of the Koran, has a little history attached to it which seems to me worth preserving.

“On the surrender of the Fortress of Agra to the British Army under the command of Lord Lake in the year (1803), a good deal of treasure, and much valuable property, or rather what seemed at one time to have been such, (was found). This Fortress had long been the residence of the Sovereign of Hindustan, or Great Mogul as he is usually called, but which it ceased to be at the death of Shah Jehan, who had long been kept in restraint in it by his son Aurungzebe who assumed the government.

“Whatever property had been left in the place at the death of Shah Jehan, had remained, it was understood, undisturbed in it, until the British Army sat down before the place in (October 1803).

“On possession being obtained, the magazines and vaults which were supposed to contain the Royal property were pointed out by some of the old residents of the place, and the massive and iron-bound doors were soon made to give way to the efforts of the soldiery, who very soon emptied them of every thing which was portable. In the evening of the day which saw this scene of confusion, my friend Lieutenant Arnold Nisbett Mathews of the Bengal Artillery went to view the interior of the Fortress. Passing one of the vaults which had shortly before been plundered, he entered, and the first object which attracted his eye was a machine which to him appeared (to be) a European *mangle*. On closer inspection however, he discovered it to be (what he never previously had an opportunity of seeing) a *printing press* and what is more, having the types ready set for some Oriental production. My friend happening to write to me in the evening, mentioned the circumstance in a passing way, I was however anxious to learn what the work had been, which had thus been most probably the very first that had ever been attempted to be printed in Hindustan, and that too, under the auspices of the head of the Empire. I instantly therefore despatched a letter by express to my friend wherein (acting as Post master at Lucknow where I then was) I entreated him to ascertain what the work might



be, and to give me if possible a proof sheet of it. This was attempted under manifold disadvantages which I need not enumerate, and the sheet to which this is attached, is the result. The type is an excellent one, and none as far as I can judge, none exists in Europe or elsewhere equal to it.

“The press was pulled to pieces and the types scattered in an hour or two after this sheet had left the press.”

2. From Babu Radha Nath Sikdar, Abstracts of Meteorological Observations taken at the Surveyor General's office in the months of August and September last.

3. From Captain J. F. Stevenson through Professor Oldham, notes of an interesting account of his visit to the hot springs of Pai in Tenasserim.

4. From Lieutenant-Colonel H. Yule a paper entitled “A few notes on antiquities near Jubbulpore.”

Colonel Yule read his paper to the meeting and a vote of thanks was passed to him for his interesting communication.

Mr. Oldham laid before the meeting a small collection of fossils and rocks from the vicinity of Sydney, Australia, for which he stated that the Geological Survey were indebted to the kindness of his Excellency Sir William Denison. As these specimens presented several points of interest which might be new to the Members of the Asiatic Society, he had laid them on the table, and would say a very few words regarding them.

To those who had given any attention to the subject of Indian Geology, it was well known that the true Geological horizon, or age of the Coal-bearing rocks of this country was a disputed question. By some they had, without much consideration of the evidence on one side or the other, been unhesitatingly placed at the same level in the general scale as the coal-measures of Europe; by others they had almost as unhesitatingly been referred to a much more recent epoch. The latter seemed to be the more favorite, as it was the more modern notion. Thus Mr. Hislop, to whose admirable researches near Nagpore, Indian Geology owed much; Dr. Carter of Bombay, and several others, and to a very great extent following in their footsteps many European geologists also, had till very recently, admitted of no separation into distinct systems, or groups of different ages, of the immense thicknesses of rock which together

constituted the several rock-masses associated with Coal in this country. Subdivisions no doubt were introduced, but all were classed under the one great epoch—and all were unitedly set down as *Jurassic* or *Oolitic*.

This view was ably argued by the Reverend S. Hislop in several papers, some of which were published in the *Journal* of this Society, and others, in the *Journal* of the Geological Society of London—and such was the received opinion up to the publication by the Geological Survey of India of some of its researches. In 1856 for the first time, this enormous thickness and strange assemblage of rocks was broken up into its proper component parts by the separation of the Talchir group, of the Rajmahal series and recently of the Panchet series: all marked successive steps in reducing to some system and order, the enormous thickness of these sedimentary rocks and in defining more and more accurately the limits of that group, with which alone good beds of coal appeared to occur—the Damuda; until now, on the plainest and most convincing physical evidence alone, independently of organic remains, it had become necessary to subdivide into at least six distinct groups, many of which are separated by wide intervals, the whole series which up to this time had been considered one.

These subdivisions, established solely by the officers of the Survey, had since been to a great extent adopted by Mr. Hislop and others, but nevertheless, so far as any published data are available, they still seemed to maintain unshaken their opinion of the *Jurassic* age of the great series associated with coal or what the Geological Survey call the Damuda series.

This question had naturally engaged Mr. Oldham's attention from his earliest arrival in India, and he had recently in a paper published in the 2nd volume of the *Memoirs* of the Geological Survey of India, given a brief summary of the results of his investigations on the subject. In this paper he had endeavoured to shew that the whole weight of the evidence fairly considered, went to assign a much earlier date to these rocks than had been previously assigned to them. He had shewn that a group of beds, to which he had given the name of *Rajmahal*, was of the same age, or contained all the same fossils, as beds described in Cutch by Capt. Grant, as being unconformably covered by others containing in abundance

fossils acknowledged to be of the same age as the lower oolite of England: that these Rajmahal beds were therefore, certainly as old as, probably older than, the lower oolites, and that further these Rajmahal beds were separated by a very large interval from the Damuda beds, which latter would consequently be considerably lower. Other evidence, all tending to the same conclusions, was also given. Up to that time (February 1860) the only animal organic remains we had found, was as elsewhere noticed, a single elytron of a beetle. But while that paper was actually passing through the press, Mr. W. Blanford had made a most interesting and most important discovery of Reptilian remains, imbedded in rocks above all the true Coal measures of the Raniganj field, and separated from them by an unconformity. To this group of rocks he had subsequently given the name of Panchet. These remains afforded immense aid in determining the age of the beds. The uncertainty which hangs over fossil evidence depending only on vegetable remains is well known, and this uncertainty is increased a thousand-fold, when the fossil flora of one district is to be compared with that of another separated from it by half the surface of the globe.

When Mr. Blanford in February 1860, first announced this discovery, and gave him a brief description of the fossils, Mr. O. at once replied, requesting him to look carefully at them, for that his brief notice appeared to indicate that he had met with *Dicynodon* remains. Mr. O. left Calcutta shortly afterwards, before these fossils had been fully opened out, having only seen a few of them which did not prove to be *Dicynodont*, as he had anticipated, but *Labyrinthodont* amphibia. On his return, however, towards the close of the year he soon perceived on an examination of the whole collection, which had meanwhile been cleaned out, that his first speculations were correct, and that there were some well marked *Dicynodon* remains.

It was well known that this group of reptiles had never hitherto been found out of South Africa; and on a reference to the paper he had alluded to above, it would be seen that he had in it indicated the marked analogy which he believed to exist between these *Dicynodont* Strata of South Africa, and some of our beds in India; a belief, at that time, based solely on the character of the vegetable remains, but which was thus strongly, and most unexpectedly confirmed by this discovery of Reptilian remains of the same character also.

He had had the locality well searched again this season, and had added much to the collection, and he had submitted all to the examination of his friend Professor Huxley; and was gratified lately by hearing from him that the collection did contain true Dicynodont as well as Labyrinthodont reptilian remains.

Unfortunately however, even this discovery did not fix, very exactly the true level of these beds, for the exact position of these South African strata was not fixed, but all would agree in thinking them either Triassic or Permian. And as a necessary consequence, the Damuda Series, which is below these, must be as old, if not older.

This important discovery gave an additional value to all such comparisons of Indian strata with those known to occur in other countries; and it was in this point of view that the present small collection of specimens from Australia presented several points of great interest.

That plants not only generically but specifically identical with those found in the Indian Damuda rocks were found also in the Sydney sandstones had long been known. These plants had been described by Morris and McCoy. The latter had on the strength of the evidence of these plants alone expressed his conviction that the group of beds to which they belonged was altogether and widely separated from that below, in which occurred numerous remains of Mollusca, corals, &c., which were acknowledged to represent a lower carboniferous era. The plant beds above were considered Oolitic. Those, however, who examined the rocks *in situ* did not support this conclusion, and did not recognise any break in the regular sequence of the two series. Certainly nothing of this kind was so markedly traceable as to lead to the idea that the interval which had elapsed was representative of the immense lapse of time between the lower carboniferous and the lower oolitic epochs of Europe.

The positive identity of some of the fossil plants with those found in India, was as he had said long known, and he was even aware of the striking resemblance in general lithological character of some of the finer sandstones and shaly beds in which these plants occurred in both countries. But he was not aware of the very marked and curiously persistent agreement in general aspect between the rocks of the two countries.



1st. The fine earthy sandstones of dove and greyish tints, in which most of the *Glossopteris* and *Phyllothea* remains are found, were so identical with the beds in several parts of India, in which similar remains occur, that the specimens on the table might readily be supposed to come from Indian localities. Of this character specially were some of the "Upper Damuda" beds in the vicinity of Jabalpur.

2nd. The Coal of Australia was identical in general character with that of India—the same peculiar laminated structure, with mineral charcoal in flakes marking the surfaces of the layers; and further, precisely the same curiously curved jointing, which here gives rise to that singular structure known as *Ball coal*, and regarding which much has been said and written. Without entering into any question as to the cause of this, the specimens on the table shewed the perfect identity of the structure in the Australian Coal with that in the Indian rocks.

3rd. These coincidences were peculiarly interesting, because the rocks which exhibit them were known to contain identical fossils. But there was still another which might be noticed. The beds which in Australia hold so abundantly the remains of Marine Mollusca, &c. (the Wollongong sandstones) were in mineral texture identical with the peculiar greenish coloured muddy and pebbly sandstones which in India are known now as *Talchir* rocks. And if this similarity in texture could only be further established by the discovery of similar remains in this country, the gain to Indian geology would indeed be great.

If then we are correct in assigning to the Damuda beds in India, a geological date, certainly as old as the upper Permian, and we admit the synchronism of the Australian rocks containing identical plants, there ceased to be such an unbridged interval between these and the Lower Carboniferous rocks which underlie them.

The evidence of a very close analogy between the two series of deposits being, therefore, very strong, it may, he thought, be confidently anticipated, that, while we had received a key to the elucidation of the fossiliferous deposits in India from Australia, we should be able, from a closer investigation of the rocks of this country, to throw back a reflected light on the series in Australia, which might tend to remove many of the present difficulties and apparent anoma-



lies. It would seem that we had in India series of beds much higher in the general scale than anything as yet found in Australia, for he was not aware of any group of rocks distinct from and above the Sydney sandstones, while it was possible that they had representatives of other groups lower in the scale than our Talchir rocks. In any case it was evident that much information could be gained from a careful comparison of the rocks in the two countries. For enabling this to be, in part at least, carried out we were indebted to the zealous aid of Sir Wm. Denison lately Governor of Sydney, now Governor of Madras.

Sir Wm. Denison remarked that the series now on the table was intended to form a complete representation of the section of the rocks near Sydney. The specimens were all carefully numbered and lettered, and this numbering referred to a carefully prepared section on which the corresponding numbers were given. This he regretted to say had been either mislaid or forgotten in the hurry of leaving Sydney. He would, however, write for a copy of it, and on its receipt it would be found that this collection contained specimens from each successive group of beds.

All along the East coast of Australia, the country rose with a regular scarp, the whole series of rocks in which appeared to him to present an unbroken succession of beds, rising one above the other step by step, marked by no break physically. But they presented a marked difference in their organic contents. Down to a certain point the fossils were chiefly of plants such as those on the table. Then came beds with coal, and under these the beds with large *Spirifers*, *Orthis*, *Pachydomus*, and true lower carboniferous fossils. He believed no coal was found below the commencement of these fossils in the Wollongong sandstones, and none above the plantbeds. A controversy was now going on between the Rev. Mr. Clark and Mr. McCoy, regarding the age of these beds which he believed turned chiefly on the peculiar characters of a fern.

He had been much interested in the few remarks made by Mr. Oldham, and so far as he could, would always have great pleasure in aiding the Society by procuring for them specimens or information.

The Officiating Librarian submitted his usual monthly report.

## LIBRARY.

The library has received the following books since the meeting in April last.

*Presented.*

Méthode pour Déchiffrer et Transcrire les Noms Sanscrits Dans les Livres Chinois, Par M. Stanislas Julien.—BY THE AUTHOR.

Légende D'Ilvala et Valápi (épisode du Mahábhárata, Par M. Ph. E. Foucaux.—BY THE AUTHOR.

Journal of the Statistical Society of London, Vol. XXIV. Part 1, with a list of the Fellows, &c. of the Society (corrected to 31st December, 1860).—BY THE SOCIETY.

Journal Asiatique, Cinquième Série, Tome XVI. Nos. 63 and 64.—BY THE ASIATIC SOCIETY OF PARIS.

The American Journal of Science and Arts, Vol. XXXI. No. 91.—BY THE EDITORS.

The Quarterly Journal of the Geological Society of London, Vol. XVII. Part 1, No. 65.—BY THE SOCIETY.

The Annals of Indian Administration, Vol. 5, Part 1.—BY THE BENGAL GOVERNMENT.

The Oriental Christian Spectator for March, 1861.—BY THE EDITOR.

Sanscrit Texts on the origin and history of the people of India, Part 3, with a book of Index to Parts 1 and 2 of the work. By J. Muir, Esq. D. C. L.—BY THE AUTHOR.

The Oriental Baptist for April, 1861.—BY THE EDITOR.

The Calcutta Christian Observer for April, 1861.—BY THE EDITOR.

Selections from the Records of the Bombay Government, No. LX. New Series, containing Capt. Fife's Report on the Eastern Narra.—BY THE BOMBAY GOVT.

Bibidhartha Sangraha, Vol. 6, No. 72.—BY BABU RAJENDRALAL MITRA.

Life of Sevaji, Bengali Translation of.—BY THE SAME.

S'ílpika Darsana.—BY THE SAME.

Revue Orientale et Américaine. Troisième Année, Nos. 26, 27.—BY THE EDITOR.

Indische Alterthumskunde, Von Chr. Lassen, vierten Bandes, erste Hälfte.—BY THE AUTHOR.

*Exchanged.*

The Athenæum for January, 1861.

The Philosophical Magazine, Nos. 138, 139.

*Purchased.*

Die SSabier und Der SSabismus, von Dr. D. Chwolson, Bands 1 and 2 with a book of Index.

Selir-Eddin's Geschichte von Tabaristan, Rujan und Masandran, von Dr. Bernhard Dorn.

' Aly Ben Scheims-Eddin's Chanisches Geschichtswerk oder Geschichte von Gilân, von B. Dorn.

' Abdu 'L-Fattâh Fûmeny's Geschichte von Gilân, von B. Dorn.

Auszüge aus Muhammedanischen Schriftstellern, von B. Dorn.

Diwan des Abu Nowas, von Wilhelm Ahlwardt, 1.—Die Weinlieder.

Geschichte der Stadt Medina, von Ferdinand Wüstenfeld.

Beiträge zur Geschichte Der Kaukasischen Länder und Völker aus Morgenländischen Quellen. II. Geschichte Schirwans unter den Statthaltern und Chanen von 1538—1820, von Bernhard Dorn.

Über Die Überreste der Altbabylonischen Literatur in Arabischen Übersetzungen, von D. Chwolson.

Roudh El-kartas, Par A. Beaumier.

Die Traditionelle Literatur der Parsen, von F. Spiegel.

Descriptio Al-Magribi, Par M. J. De Goeje.

Die Lieder des Hafis, Vol. 3, Part 2, von Hermann Brockhaus.

Beiträge Zur Kenntniss der Iranischen Sprachen, 1. Theil,—von, B. Dorn und Mirsa Muhammed Schafy.

Neriosengh's Sanskrit-Uebersetzung des Yaçna, von F. Spiegel.

The Quarterly Review for January, 1861.

Catalogue Annuel de la Librairie Française, Vol. 3 of 1860.

Erörterungen über Psendo-Wakidi's Geschichte der Eroberung Syriens, von D. B. Hanberg.

Revue et Magasin de Zoologie, No. I. of 1861.

The Annals and Magazine of Natural History, Third Series, Vol. 7, No. 39.

The Literary Gazette, Vol. VI. New Series, Nos. 138 to 141.

Journal des Savants for February, 1861.

Comptes Rendus, Tome 52, Nos. 6 to 8.

LALGOPAL DUTT,

*Offg. Asst. Secy. and Librarian.*

*Report of the Curator, Zoological Department, July.*

I have the pleasure to acknowledge the following presentations :—

1. From H. R. H. The Prince Consort. An exquisitely stuffed head with horns of the Scottish Red Deer. This having been a desideratum in the Society's museum, I wrote to Andrew Murray, Esq., of Edinburgh, requesting that he would endeavour to procure a fine specimen for our collection. In reply he remarked that—"The Red Deer head with the full complement of tines and a tolerable crown is not easy to get. It is called a 'Royal Stag,' and is usually preserved by the sportsman as a trophy. But I took the opportunity," he adds, "of being at Balmoral with the British Association to ask one for you, from Prince Albert through his factor or factotum, Dr. Robertson, who promised to bring my request before his Royal Highness." \* \* \* The following is an extract from a letter from Dr. Robertson, Chamberlain to H. R. H., to A. Murray, Esq.—'I embraced an opportunity before H. R. H. the Prince Consort left Balmoral, to place your letter into his hands, and was much gratified to receive the commands of H. R. H. to forward to you for the object stated in your letter, the head of a 'Royal Stag' having the 'cup,' and the usual complement of tines. It is a fine specimen. I have seen larger; but it is remarkably regular and well developed. Perhaps it may add a little to its value, not only that it is presented by the Prince, but shot by H. R. H. The following is the history of the specimen, which I am directed to communicate. 'This Stag was killed by His Royal Highness, the Prince Consort, upon Lochnagaar, the 8th September, 1859; weight, after being cleaned out, 16 stone 12lb.' It would be very difficult to get the series, shewing the horns in their different years; the growth of the horn depending so much on pasture. If *fine*, the horns are developed quickly; if *poor* and precarious, as in our country, they are slower and uncertain in their growth. In parks where the food is rich, the full complement of tines is seen at three or four years. The received opinion with us is that the animal never shews a *royal* head under six or seven years.'

Unquestionably the CERVUS ELAPHUS is stunted in its development in the Scottish Highlands, for the reason assigned; as also on

the bleak moors of Devonshire, and in Ireland, where the species would appear to be fast verging on extirpation.\* It attains a finer growth in Richmond Park, Surrey; though still not comparable, in the magnificent development of horn, to the specimens occasionally met with in the peat-bogs of the British Islands and other post-pliocene deposits of the west of Europe, or to the noble Stags which still exist in the great forests of Hungary and Transsylvania. *Vide* dimensions of the horns of a modern Stag, shot on the Buckowina in 1815, in *J. A. S. X*, 749,—and figure of a Hungarian horn, p. 750, pl. f. 11; also figure of the noble pair of horns of an ancient Irish Stag in the *Natural History Review* for January, 1860, p. 61. At a meeting of the Geological Society of Dublin, (November 8th, 1843, as cited by the late W. Thompson of Belfast,) “a magnificent series of the horns of the Red Deer, from Balinderry Lake, County Westmeath,” were exhibited, among which was “one pair of gigantic proportions, having nineteen tines, possessed also of the unusual quality of being, in huntsman’s parlance, ‘doubly royal,’ or giving indication of a double palmation near their terminations; an occurrence of a rare kind, and the result of very advanced age in the animal.”† (The latter is a mistake.) *Vide* also Owen’s figure in his *British Fossil Mammals and Birds*. Many years ago, Professor Schinz of Zurich remarked to me, in the course of his correspondence, that the fossil specimens of *C. ELAPHUS* found in Switzerland are generally about one-fourth larger, in all their dimensions, than the common existing race of the same region.

It has occurred to me that the great Hungarian Stag might prove to be no other than the Asiatic race, which is known to extend to the eastern shore of the Euxine, from which region a pair are now

\* *Vide* Thompson’s ‘*Natural History of Ireland*,’ IV, 31.

† Doubtless the identical specimen figured in the *Natural History Review* which numbers nineteen tines. The Red Deer of Norway are considerably smaller than those of the Scottish Highlands. Thus, Mr. L. Lloyd remarks, that on the island of “Hittern, which is situated within less than one hundred miles of Drontheim, the ancient capital of Norway, there are a good many Red Deer still remaining—several hundreds it is said—and more than one of my friends,” he adds, “have enjoyed tolerable sport with the rifle: \* \* \* but every one agrees in stating that the Deer found on the island are remarkably small—one-third less, at the least, than those in the Highlands of Scotland. These again are inferior to the German Deer, so that it would seem that either a deficiency of proper food, or the severity of the climate, has caused the breed greatly to degenerate.” *Scandinavian Adventures* (1854), II, 219.



living in the London Zoological Gardens : but the figure of a Hungarian horn, before cited, does not bear out the supposition ; it having more the character of the fossil Stag-horns of Western Europe. The Asiatic race is the *C. ELAPHUS* of Pallas's *Zoographia Rosso-Asiatica* (I, 216, *edit.* 1831).—"Europæos magnitudine excedere videtur. Caput elongatum, rostro producto versus frontem sub-compresso, extremo depressiusculo, rotundato. \* \* \* Cornua masculorum, cum portione cranii ponderata 20 libras\* æquabant. \* \* \* In ipsa Rossia exulent,† nisi quandoque advenæ ; in nemerosis ad Terec fluv. totoque Caucaso usque ad Cuman fluv. frequentissimi ; denuo apparent magno numero in sylvis subaltaicis, et dehinc per totam Siberiam, circa Baicalem maxime lacum et ad Vitim et Lenam fluviis usque, non in maxime borealibus, nec in ultimo Siberiæ angulo. \* \* \* Longitudo animalis a summo rostro ad anum 7', 8", 0" ; altitudo ad scapulis 4', 5", 0" ; ad lumbos 4', 6", 0" ; longit. capitis 1', 6", 0" ; caudæ 4", 2'". This is the Kashmirian Stag (*Hungal* or *Hunglu* of Anglo-Indian sportsmen), which Mr. A. Leith Adams, Surgeon, 22nd Regiment, has noticed in *Proc. Zool. Soc.* 1858, p. 530, where he remarks that "the horns are large, and usually very massive, with from 10 to 15 or more points according to age. The largest pair of horns I have measured," he adds, "were 4 feet round the curves, with 6 and 7 points. In habits and general appearance," remarks this observer, "the Kashmirian Stag bears a striking resemblance to the Red Deer. Although it is seldom now-a-days that individuals of the latter species escape the hunter so long as to attain the size and magnitude of the Kashmirian animal, yet I think it will be found that the horns of those killed in the forests of Scotland in former years are equal to any at present met with in Kashmir." (The race, however, is different, as the superior magnitude of the Asiatic Stags, compared with the modern European, is conspicuous at all ages ; and vigour and high feeding, rather than great age—when the horns successively decline,—produce the maximum of development during the animal's prime of life, as Mr. Adams would doubtless admit, and at least some individuals should attain the necessary age even now in the Scottish Highlands. "An adult

\* 20 lbs. Russian = 18 lbs. avoirdupois.

† Mr. T. Witlam Atkinson observed numerous Stags in the southern Oural (in the district of the gold-mines of Balbouch), which were doubtless of the Asiatic species.

[Kashmirian] Stag," continues Mr. Adams, "averages 13 hands in height" [!], *i. e.*  $4\frac{3}{4}$  ft.; and Pallas's  $4\frac{1}{2}$  ft. at croup is probably French measure, and therefore fully equal to the other. But an adult Wapiti (*C. CANADENSIS*), which I measured alive in London, with well developed horns, was only  $4\frac{3}{4}$  feet high at the shoulder; though Lewis and Clarke measured one, which "on placing it in its natural erect position," measured  $5\frac{1}{4}$  ft. from point of hoof to shoulder; and Mr. Catlin informed the late Secretary of the Zoological Society (Mr. D. W. Mitchell) that he had seen a pair of shed Wapiti-horns, at the foot of the Rocky Mountains, of such dimensions, that when set up on their points, and thus converted into an archway, the tallest man of his party could walk under without touching them.\* Mr. Hodgson gives the height of his Tibetan *C. AFFINIS* as from  $4\frac{1}{2}$  to 5 ft. at the shoulder (*J. A. S.* XX, 388); and it has been a disputed question whether this or the Kashmirian (*i. e.* the ordinary Asiatic) Stag should be referred to *C. WALLICHII*, Duvaucel (Fr. Cuvier, *Mamm. Lithog.* II, t. 104). The latter name was founded on a living pair formerly in the Barrackpore menagerie, which were brought from Muktinath, near the famous towering mountain-peak of Dwalgiri, but on the opposite or eastern side of the Gunduk river and lying north of the great Himalayan range. The male, as figured by M. Fr. Cuvier (from a drawing sent by M. Duvaucel), would appear to have then borne his second horns; and he measured, according to Hardwicke,  $4\frac{1}{4}$  ft. high at the shoulder, and is figured with an expanse of white disk surrounding the tail similar to that of the Wapiti, but I suspect exceeding what is seen either in the *Hungal* or the *Shou* (as observed alive), and therefore probably exaggerated. This animal died at Barrackpore, and we still possess what were evidently his horns (figured in *J. A. S.* X, 750, pl. f. 7). I have now compared them carefully with mature horns of both *Hungal* and *Shou*; and though it is impossible to pronounce with confidence, I incline rather to assign them to the *former*, considering also the locality, and the dimensions of the young buck as given by Hardwicke.†

In this case, the name *CERVUS AFFINIS*, Hodgson, stands for the

\* Guide to the Gardens of the Zoological Society of London (August, 1859), p. 48.

† Since writing the above, I have seen a most magnificent pair of horns of this species, procured at Ladakh.

great species of Eastern Tibet and doubtless of Mongolia; and *C. WALLICHII* holds precedence for the Asiatic *C. elaphus* of Pallas; a different conclusion from that to which I arrived in *J. A. S.* XXIII, 736.

From the splendid series of Stag-horns displayed at the meeting, it is sufficiently obvious that the North American *Wapiti* Stag (*CERVUS CANADENSIS*) is the largest of the four species exhibited; that the *Shou* (*C. AFFINIS*) is the next in size; that the *Hungal* (*C. WALLICHII*) follows; and finally the modern European Stag (*C. ELAPHUS*); next in succession (of species not exhibited) comes the Barbary Stag (*C. BARBARUS*), rather bulky in the body and low on the legs, the male with an enormously tumid larynx during the rutting season; and smallest of all, by far, the elegant little Stag of Japan, and probably of the north of China and of Mantchuria (*C. SIKA*, *vide* p. 91 *antea*).\* *C. AFFINIS* is remarkable for never shewing, even in the finest horns (so far as hitherto seen), more than a simple bifurcating 'crown' or summit (*vide* figures in *J. A. S.* X, 722; XX, 388). *C. BARBARUS*, so far as I am aware, never shews the second basal tine (or bez-antler); but I have seen a horn of this species with a trifid crown; and it is probable that *C. SIKA* also never develops the second basal tine; but with the mature horn of the wild *C. SIKA* I am unacquainted. The imperfectly mature Stags of *C. ELAPHUS*, again, are very generally without the second basal tine, which actually does not occur in the series of horns of this species figured in Prof. Bell's 'History of British Quadrupeds.' But in horns of young *C. WALLICHII*, which I have seen, the second basal tine seems to be generally present (*vide J. A. S.* X, p. 750, pl. fs. 7 and 10).†

This is not unworthy of notice, and helps to indicate that *C. ELAPHUS* is a degree more nearly akin to *C. BARBARUS*. Again, I think it will be found that in both *C. AFFINIS* and *C. CANADENSIS*, as in *C. WALLICHII*, the second basal tine is very generally present in the animal's second pair of horns,—rarely, if ever, so in *C. ELAPHUS*! There appears also to be another marked difference between

\* Distinct from *C. TAIOUNUS* of Formosa.

† It is not so, however, in Mr. Hodgson's figures of horns appertaining most assuredly to a young *C. WALLICHII*, *J. A. S.* XX, 393; his *Nári* or Stag of Western Tibet, *C. naryanus*, Hodgson.

the horns of *C. WALLICHII* on the one hand, and those of *C. ELAPHUS*, whether large or small, recent or fossil, on the other; consisting in the fact that the European animal has the pair conspicuously straighter in the beam, and less divergent apart; whereas in both *C. WALLICHII* and *C. AFFINIS*, the pair are considerably more divergent and bowed, and again converge at the crown (*vide J. A. S. XXIII, 735, pl. 6*). In *C. CANADENSIS* the pair are also more divergent, but do not generally tend to converge at the crown, which, in this species, consists mostly of successively diminishing tines on the same plane, thrown off and upward from the continuation of the beam that inclines backward (*vide J. A. S. X, pl. f. 6*).

As regards the development of *C. ELAPHUS* in Western Europe in former days, if not in the forests of Hungary at the present time,\* as compared with the species as now existing in the British Islands, I exhibit a pair of magnificent *Sambur* horns from the Coromandel coast, which as far transcend what are ordinarily considered first-rate *Sambur*, as the ancient British Stag-horns excel in dimensions and development of crown, those of the modern Stag of Western Europe.

The range of *C. AFFINIS* extends, in all probability, to the mountains of the north of China and Mantchuria, where Mr. Swinhoe has information of "a great Stag with large branching horns." The Stags of Mongolia, abounding in the mountainous region of the Kalka country (which extends from near the Russian frontier-station of Kiakhta to the great elevated desert of Gobi, and from which the river Onon takes its rise), are in all probability of the Shou species. Thus the Mantchu, Touleschin, as quoted by Timkowski, mentions that he shot "a very large Stag on the Khanola," which is north of the Khingan, on the left bank of the river Tola. The productions of that region are generally Tibetan, and tame Yaks abound (which are habitually miscalled "Buffaloes" by Timkowski).† The Stags of the Gobi, also, repeatedly mentioned by Timkowski and others, are doubtlessly Shous; and

\* The Roe is stated to be much larger in Austria than in the British Islands.

† In his description of "Eastern Turkistan, a country better known in Europe by the name of Little Bucharia," (as he remarks, drawn up chiefly from information obtained in China,) he states, "The wild Oxen are here very strong and fierce. If the hunter does not kill them with the first shot, he is in danger of being torn to pieces." Lloyd's English translation (1827), I, 406. Wild Yaks are of course intended. M. Huc also refers to wild Yaks simply as wild cattle.



the species probably extends onward to the mountains of China proper and of Mantchuria.\* Mr. T. Witlam Atkinson, in his volume of travels in Southern Siberia, &c., seems to indicate that more than one species fell under his observation. In the well wooded valley of the Houchan, surrounded by high mountains, towards the western extremity of the true Altai, he remarks that "Deer [C. WALLICHII] are numerous in this region; while higher up the mountains, the Alain [C. AFFINIS ?], a Stag of a large size, may be met with." He went in quest of these Alain, and succeeded in killing "a splendid buck in fine condition," but gives no further information respecting it. Elsewhere he notices "the Stags on the mountains and the Deer on the hills" of the Altai; and of a remarkable scene in the Alain mountains in Tchungaria—"thus these grand and wild scenes are closed to man; and the Tiger remains undisturbed in his lair, the Bear in his den, and the Maral and wild Deer range the wooded parts unmolested." Maral is the name which C. WALLICHII bears in Persia; from which country a pair of these animals were taken to England by Sir John McNeill, of which I have the most vivid recollection, and they certainly did not exhibit the Wapiti-like expanse of white caudal disk, as figured by M. Fr. Cuvier. Their general hue was remarkably pallid. In a coloured drawing of a Kashmirian Stag, in summer vesture, taken from a tame animal in Kashmir, by my friend G. T. Vigne, Esq., the *pelage* is represented as bright pale rufous-chesnut. Mr. A. Leith Adams, however, states that—"The colour of the coat varies but little in the sexes, or with the seasons of the year; dark liver-colour, with reddish patches on the inner sides of the hips; belly and lower-parts white, or a dirty white. The male has the hair on the lower surface of the neck long and shaggy (wanting in the female)." Analogy with C. ELAPHUS and C. CANADENSIS would indicate that the summer coat worn at the time that the horns are in 'the velvet,' would be a bright rufous, as Mr. Vigne has represented it in his drawing.

It may be, after all, that the Alain of Mr. Atkinson refers merely

\* "In Mongolia," remarks M. Timkowski, "the name of 'Gobi' is given to every steppe destitute of water and vegetation, as they designate by the name of 'Khangai,' every place where the mountains are covered with wood and where the valleys abound in grass and water." Such places in the vast elevated region of the Great Gobi are doubtless the true haunts of the Stag referred to.



to the fully developed Stag of C. WALLICHII; but the contrary seems more probable.\*

2. From J. F. Galiffe, Esq. Two living specimens of the *Tokki* or *Toktu* (PLATYDACTYLUS GECKO), captured near Calcutta.†

3. From Babu S. S. Ghose. A large Medusa (or 'Blubber-fish' of seamen), east ashore at Diamond Harbour, 'apparently of the genus CEPHIA of Peron, as figured by M. Lesson (*Voyage de la Coquille*); but the appendages mutilated of all but their peduncles.

4. From Babu Rajendra Mallika. Various addled eggs, laid in his aviaries, of which some specimens of interest have been cleaned and prepared. Among these are examples of the eggs of the Razor-billed and of Yarrell's Curassow, PAVO MUTICUS, P. CRISTATUS, (*albus*), and hybrid P. CRISTATUS cum P. MUTICO, also of hybrid Fowl and Guinea-fowl,—one of the latter remarkably large, measuring  $2\frac{1}{2}$  in.  $\times$   $1\frac{2}{3}$  in.

Also, for exhibition to the meeting, the mounted skin of CASUA-

\* The known species of Stag (restricted CERVUS), or *Elaphine* type of Deer, may be thus enumerated.

1. C. CANADENSIS, Brisson; *C. stronglyloceros*, Schreber; *C. occidentalis*, C. Ham. Smith; *C. major*, Ord. The Wapiti; or miscalled Elk of N. America.

2. C. AFFINIS, Hodgson. The Shou. E. Tibet, Mongolia? N. China? Mantchuria?

3. C. WALLICHII, Cuvier; *C. elaphus* of Asia apud Pallas; *C. caspianus*, Falconer; *C. naryanus*, Hodgson. Tartary and Siberia, Ural, Caucasus, Persia, Kashmir, valley of the Oxus. N. B. The Stags in the parks attached to the Emperor's summer palace near Peking would appear to be C. WALLICHII.

4. C. ELAPHUS, L. S. Europe only. (The "Corsican Stag" of Buffon being probably only a stunted variety.)

5. C. BARBARUS, Bennett. Africa, N. of the Atlas, especially Tunis.

6. C. SIKA, Schlegel: Japan.

7. C. TAIOUANUS, Swinhoe, Blyth, *J. A. S.* XXIX, 90: *C. axis* apud Cantor, *Ann. Mag. N. W.* IX (1842), note to p. 274; probably distinct from C. PSEUD-AXIS of the Philippines, *Zool. Bonite*, p. 14, Schinz, *Syn. Mamm.* II, 386.

(N. B. Mr. Selater is wrong in identifying the Japanese and Formosan species. *P. Z. S.* Nov. 13th, 1860, and *Ann. M. N. H.* Feb. 1861, p. 143.)

The whole of the species appear to be exceedingly well distinguished.

In p. 24 *antea*, the "*Bara singha* or Elk" is noticed as inhabiting the Kashmirian mountains: C. WALLICHII being of course intended,—not the true *Bara singha* of the plains of India which is C. DUVAUCELII.

Among the numerous local names collected by Pallas, there is not one that approximates the word *Alain*: but he gives "*Baarsingak*, i. e. *Bara-singha*, *Indis*; ad Irin *Maral*; Calmuccis mas *Buga*, cerva *Maaril*; ad Baicalen *Isubr*:" now *Isubrissin* is applied by Strahlenberg to the ordinary Stag of Siberia, as distinguished from his *Irbisch* or great Stag, noticing also the Elk, Rein Deer, and Roe; and there can be little doubt that this *Irbisch* (if not also the *Alain*), and likewise the great Stag of Mantchuria and the mountainous regions of the north of China, are one and the same with C. AFFINIS of the forest region of E. Tibet.

† These have since arrived in good health in the zoological gardens, Regent's Park, London.

RIVUS UNAPPENDICULATUS, nobis, *antea*, p. 112; the bird probably about half-grown. It entirely resembles *C. GALEATUS* of the same age in general structure; but the colouring of plumage is that of the small young of *C. GALEATUS*, or with considerably less admixture of black than is seen in an ordinary Cassowary of the same size; the only marked distinction consisting in the very different arrangement and predominating yellow of the bright colours of the neck, and in the single small yellow caruncle in front of the neck, in place of the two larger and bright red caruncles of the common species. Again, the nude skin of the lower part of the neck is smooth or comparatively tense, and not tumous and wrinkled as in the other. I remark, also, in the stuffed specimen, along the medial third of the back, a nude line about  $\frac{3}{8}$  in. broad, parting the feathers which flow on either side. Unfortunately, the body was thrown away, the sex even not ascertained; but the sexes in this genus hardly differ in appearance: nor is the bird so skilfully set up as could be wished. The habitat of this species of Cassowary remains to be ascertained. (*Vide* note to p. 92, *antea*).\*

E. BLYTH.

\* Here it may be remarked, that, during a recent visit to British Burmá, I found—what certainly is not generally known—that the *CERVUS* (*PANOLIA*) *ELDI*, Guthrie, (*frontalis*, McClelland, —*lyratus*, Schinz, —*dimorphe*, Hodgson,) is common in the valley of the Irawádi; its venison being often brought to the Rangoon provision-bazar, together with that of the Samur, Hog Deer, and Muntjac or Barking Deer. On one occasion, I saw portions of the carcasses of all four species together, frightfully hacked as usual, without even a preliminary skinning. These are the only Deer of Burmá, until southward, in the provinces of Tavoy and Mergui, we come more emphatically on the Malayan *Fauna* and *Flora*, when the little Chevrotain, *TRAGULUS KANCHIL*, occurs, together with the Malayan Tapir, and in Mergui the *GALÆOPITHECUS*, *ARGUS GIGANTEUS*, *EUPLOCOMUS VIELLOTTI*, *ROLLULUS CRISTATUS*, *CALOPERDIX OCELLATUS*, and other Malayan peninsula and Sumatran species. At Moulmein I saw, with Major Tickell, a young buck of *C. ELDI* alive, in its rufous summer coat, —exceedingly resembling the Indian *Bára Singha* (*C. DUVAUCELI*) in corresponding vesture, except that it is rather smaller, with differently shaped horns. I am now satisfied that the *C. dimorphe*, Hodgson (*J. A. S.* XII, 897), is no other than *C. ELDI*, with horns imperfectly developed in a state of captivity, however the individual may have been conveyed to Nepál from doubtless the left side of the *Brahmaputra*; for I believe that it is no more an inhabitant of the sub-Himalayan sál-forest than is the *Shou* of Eastern Tibet, or *C. AFFINIS*, Hodgson. The range of *C. ELDI* extends into the Malayan peninsula; and this species represents, on the eastern side of the Bay of Bengal, the *C. DUVAUCELEI* of India, with similar habits, being more gregarious, and affecting more open country, than the other Deer of these regions.

The most important fact in zoology which I have ascertained, during this trip, is the identification of the two-horned Rhinoceros of the Tenasserim provinces with *Rh. Crossii*, Gray, *P. Z. S.* 1854, p. 250. At the same time,

comparison of a stuffed head in our museum with the figure in *Phil. Trans.*, LXXXIII (1793), *tab.* II, convinces me that the species must be referred to *RH. SUMATRANUS*, auctorum; which attains a development of horn hitherto unsuspected. The skull of a one-horned Rhinoceros shot by my friend Dr. Hook near 'Tavoy Point' (where there is a small isolated colony of the species), and presented by Col. Fytche to the Society, is that of *INDICUS* and not *SONDAICUS*; of which last we have two fine skulls in the museum: but there is said to be a third Tenasserim species on the Siamese frontier, known as the 'fire-eater,' from its propensity to attack the night-fires of travellers, stated to be of a paler colour than the others, and to have its skin studded with small tubercles. Dr. Mason leaps to the conclusion that this is *RH. SONDAICUS*; but it remains to be proved, especially as I can find no account of *RH. SONDAICUS* evincing the fire-attacking propensity in Java and Borneo, although the same has been stated of the ordinary Black Rhinoceros of S. Africa.—Since writing the above, Prof. Oldham has assured me that his fire was attacked by a Rhinoceros, which he shot, and recovered the skull three days afterwards. It was 2-horned, and evidently *RH. SUMATRANUS*, with moderately developed horns. This militates against the supposition that the 'fire-eater' is a particular species. Fine horns of this Asiatic two-horned Rhinoceros are most difficult to procure, as they are bought up at extravagant prices by the China-men.

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